



STIC Search Report

Biotech-Chem Library

STIC Database Tracking Number: 146886

TO: Lansana Nyalley
Location: 5b21/5c18
Art Unit: 1621
Friday, March 11, 2005

Case Serial Number: 10/623293

From: Noble Jarrell
Location: Biotech-Chem Library
Rem 1B71
Phone: 272-2556

Noble.jarrell@uspto.gov

Search Notes

REM. 5B21
Ext. 20697

Access DB# _____

SEARCH REQUEST FORM

Scientific and Technical Information Center

146886

Requester's Full Name LANSANA NYALLEY Examiner # 80552 Date: _____
Art Unit: 1621 Phone Number 30571-272-0697 Serial Number: 10/6239293
Mail Box and Bldg/Room Location: 5C18 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

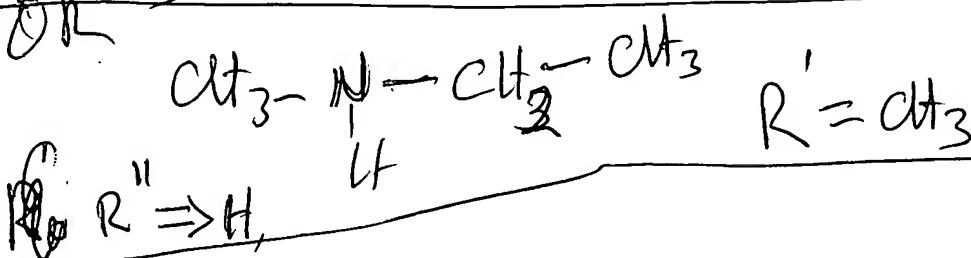
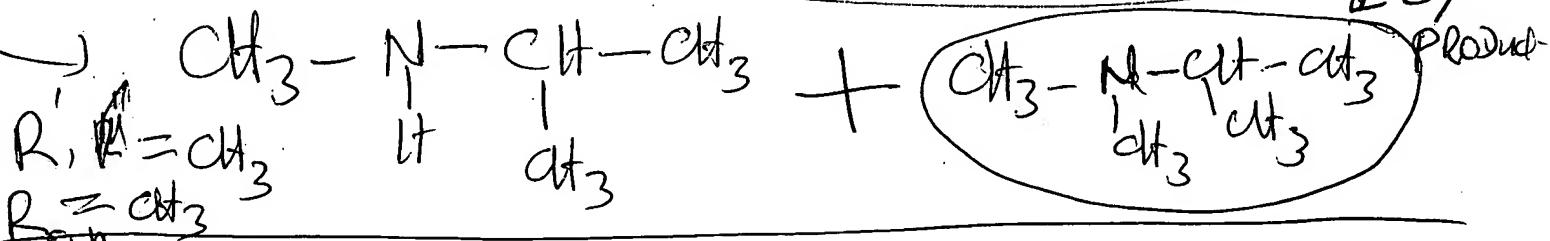
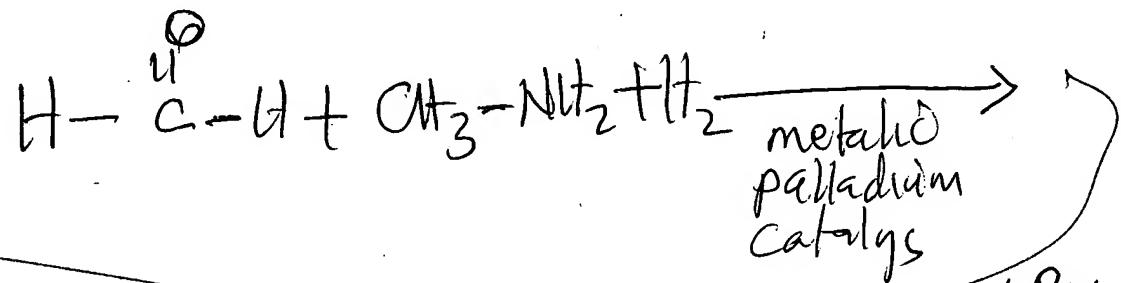
Title of Invention: _____

Inventors (please provide full names): _____

Earliest Priority Filing Date: _____

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

PROCESS



=> b reg
FILE 'REGISTRY' ENTERED AT 13:43:46 ON 11 MAR 2005
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Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES: 9 MAR 2005 HIGHEST RN 844817-50-1
DICTIONARY FILE UPDATES: 9 MAR 2005 HIGHEST RN 844817-50-1

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 18, 2005

Please note that search-term pricing does apply when
conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more
information enter HELP PROP at an arrow prompt in the file or refer
to the file summary sheet on the web at:
<http://www.cas.org/ONLINE/DBSS/registryss.html>

=> d ide 111 tot

L11 ANSWER 1 OF 10 REGISTRY COPYRIGHT 2005 ACS on STN
RN 794520-70-0 REGISTRY
CN Hydrogen, octahydrate (9CI) (CA INDEX NAME)
MF H2 O . 1/8 H2
SR CA
LC STN Files: CA, CAPLUS
DT.CA Caplus document type: Journal
RL.NP Roles from non-patents: PRP (Properties)
CRN (1333-74-0)

H-H

●8 H₂O

1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L11 ANSWER 2 OF 10 REGISTRY COPYRIGHT 2005 ACS on STN
RN 166530-34-3 REGISTRY
CN Hydrogen, hydrate (1:2) (9CI) (CA INDEX NAME)
MF H2 O . 1/2 H2
SR CA
LC STN Files: CA, CAPLUS, TOXCENTER
DT.CA Caplus document type: Journal
RL.NP Roles from non-patents: PREP (Preparation); PRP (Properties)
CRN (1333-74-0)

H-H

●2 H₂O

5 REFERENCES IN FILE CA (1907 TO DATE)

5 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L11 ANSWER 3 OF 10 REGISTRY COPYRIGHT 2005 ACS on STN
RN 166529-94-8 REGISTRY
CN Hydrogen, hydrate (2:1) (9CI) (CA INDEX NAME)
MF H2 O . 2 H2
SR CA
LC STN Files: CA, CAPLUS
DT.CA CAplus document type: Journal
RL.NP Roles from non-patents: PRP (Properties)
CRN (1333-74-0)

H-H

●1/2 H₂O1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L11 ANSWER 4 OF 10 REGISTRY COPYRIGHT 2005 ACS on STN
RN 152076-63-6 REGISTRY
CN Hydrogen, hexahydrate (9CI) (CA INDEX NAME)
MF H2 O . 1/6 H2
SR CA
LC STN Files: CA, CAPLUS
DT.CA CAplus document type: Journal
RL.NP Roles from non-patents: PREP (Preparation); PRP (Properties)
CRN (1333-74-0)

H-H

●6 H₂O2 REFERENCES IN FILE CA (1907 TO DATE)
2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L11 ANSWER 5 OF 10 REGISTRY COPYRIGHT 2005 ACS on STN
RN 152076-62-5 REGISTRY
CN Hydrogen, monohydrate (9CI) (CA INDEX NAME)
MF H2 O . H2
SR CA
LC STN Files: CA, CAPLUS
DT.CA CAplus document type: Journal
RL.NP Roles from non-patents: PREP (Preparation); PROC (Process); PRP
(Properties)
CRN (1333-74-0)

H-H

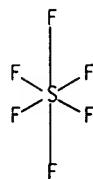
●H₂O8 REFERENCES IN FILE CA (1907 TO DATE)
8 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L11 ANSWER 6 OF 10 REGISTRY COPYRIGHT 2005 ACS on STN

RN 152067-50-0 REGISTRY
 CN Hydrogen, mixt. with (OC-6-11)-sulfur fluoride (SF6) (9CI) (CA INDEX NAME)
 OTHER CA INDEX NAMES:
 CN Sulfur fluoride (SF6), (OC-6-11)-, mixt. contg. (9CI)
 OTHER NAMES:
 CN Hydrogen-sulfur hexafluoride mixt.
 MF F6 S . H2
 CI MXS
 SR CA
 LC STN Files: CA, CAPLUS
 DT.CA Cplus document type: Journal
 RL.NP Roles from non-patents: USES (Uses)

CM 1

CRN 2551-62-4
 CMF F6 S



CM 2

CRN 1333-74-0
 CMF H2

H-H

1 REFERENCES IN FILE CA (1907 TO DATE)
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L11 ANSWER 7 OF 10 REGISTRY COPYRIGHT 2005 ACS on STN
 RN 53280-39-0 REGISTRY
 CN Hydrogen, hydrate (9CI) (CA INDEX NAME)
 MF H2 O . x H2
 LC STN Files: CA, CAPLUS, GMELIN*
 (*File contains numerically searchable property data)
 DT.CA Cplus document type: Journal: Patent
 RL.P Roles from patents: PREP (Preparation); RACT (Reactant or reagent);
 USES (Uses)
 RL.NP Roles from non-patents: FORM (Formation, nonpreparative); OCCU
 (Occurrence); PREP (Preparation); PRP (Properties); USES (Uses)
 CRN (1333-74-0)

H-H

●x H₂O

9 REFERENCES IN FILE CA (1907 TO DATE)
 9 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L11 ANSWER 8 OF 10 REGISTRY COPYRIGHT 2005 ACS on STN
 RN 12710-60-0 REGISTRY
 CN Hydrogen, monoammoniate (9CI) (CA INDEX NAME)
 DR 55067-05-5
 MF H3 N . H2
 LC STN Files: CA, CAPLUS, GMELIN*
 (*File contains numerically searchable property data)
 DT.CA CAplus document type: Journal
 RL.NP Roles from non-patents: PRP (Properties)
 CRN (1333-74-0)

H-H

●NH3

2 REFERENCES IN FILE CA (1907 TO DATE)
 2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L11 ANSWER 9 OF 10 REGISTRY COPYRIGHT 2005 ACS on STN
 RN 11062-36-5 REGISTRY
 CN Hydrogen, ion (H2-) (8CI, 9CI) (CA INDEX NAME)
 OTHER NAMES:
 CN Atomic hydrogen ion(2-)
 CN H2-
 MF H
 LC STN Files: CA, CAPLUS, TOXCENTER
 DT.CA CAplus document type: Conference; Journal; Patent
 RL.P Roles from patents: BIOL (Biological study); PREP (Preparation); USES (Uses)
 RL.NP Roles from non-patents: BIOL (Biological study); FORM (Formation, nonpreparative); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

H2-

69 REFERENCES IN FILE CA (1907 TO DATE)
 69 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L11 ANSWER 10 OF 10 REGISTRY COPYRIGHT 2005 ACS on STN
 RN 1333-74-0 REGISTRY
 CN Hydrogen (8CI, 9CI) (CA INDEX NAME)
 OTHER NAMES:
 CN Dihydrogen
 CN Hydrogen (H2)
 CN Hydrogen molecule
 CN Mol. hydrogen
 CN Molecular hydrogen
 CN Orthohydrogen
 CN Parahydrogen
 CN Protium
 DR 725200-57-7
 MF H2
 CI COM
 LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, DDFU, DETHERM*, DIOGENES, DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT.

ENCOMPAT2, HSDB*, IFICDB, IFIPAT, IFIUDB, IMSCOSEARCH, IPA, MEDLINE, MRCK*, MSDS-OHS, NIOSHTIC, PDLCOM*, PIRA, PROMT, RTECS*, SPECINFO, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL

(*File contains numerically searchable property data)

Other Sources: DSL**, EINECS**, TSCA**

(**Enter CHEMLIST File for up-to-date regulatory information)

DT.CA Cplus document type: Book; Conference; Dissertation; Journal; Patent; Preprint; Report

RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

RLD.P Roles for non-specific derivatives from patents: ANST (Analytical study); BIOL (Biological study); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

H-H

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

296023 REFERENCES IN FILE CA (1907 TO DATE)

3624 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA

296159 REFERENCES IN FILE CPLUS (1907 TO DATE)

1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=> => d his

(FILE 'HOME' ENTERED AT 13:13:19 ON 11 MAR 2005)

L1 FILE 'HCAPLUS' ENTERED AT 13:13:23 ON 11 MAR 2005
2 (US20040019238 OR US US20040015016)/PN

FILE 'REGISTRY' ENTERED AT 13:14:14 ON 11 MAR 2005

L2 FILE 'HCAPLUS' ENTERED AT 13:14:16 ON 11 MAR 2005
TRA L1 1- RN : 16 TERMS

L3 FILE 'REGISTRY' ENTERED AT 13:14:16 ON 11 MAR 2005
16 SEA L2

L4 FILE 'WPIX' ENTERED AT 13:14:18 ON 11 MAR 2005
1 (US20040019238 OR US US20040015016)/PN
FILE 'HCAPLUS' ENTERED AT 13:37:03 ON 11 MAR 2005
E CARBONYL/CT

L5 5284 (CARBONYL (1A) COMPOUND?)/CW (L) RACT+NT/RL

L6 FILE 'REGISTRY' ENTERED AT 13:38:37 ON 11 MAR 2005
E HYDROGEN/CN
1 E3

L7 4246 H2
 L8 547 L7 AND HYDROGEN
 L9 QUE (PMS OR MAN OR IDS)/CI OR COMPD OR COMPOUND OR UNSPECIFIED
 L10 53 L8 NOT L9
 SEL RN 1 21-25 44 50 52-53
 L11 10 E1-10 AND L10

FILE 'HCAPLUS' ENTERED AT 13:44:16 ON 11 MAR 2005
 L12 QUE (L11 OR ?HYDROGEN/BI OR H2? OR MOL? (1A) HYDROGEN OR PROTIU
 L13 229 L12 AND L5
 E PRIMARY AMINE/CT
 E E4+ALL
 E AMINES/CT
 L14 3117 AMINE#/CW (L) PRIMARY
 L15 1343 L14 (L) RACT+NT/RL
 L16 3 L15 AND L13
 E SECONDARY AMINES/CT
 E E3+ALL
 L17 4664 AMINE#/CW (L) SECONDARY
 L18 2 L16 AND L17
 L19 2 L13 AND L14 AND L17
 L20 QUE L11 OR ?HYDROGEN/BI OR H2? OR MOL? (1A) HYDROGEN OR PROTIUM
 L21 5 L5 AND L20 AND L14
 L22 6 L5 AND L20 AND L17
 L23 8 L21-22
 E SU W/AU
 L24 61 E3,E22-23
 E SU WEI/AU
 L25 142 E3,E37-38
 E NELLI C/AU
 L26 6 E5-7
 L27 2 L23 AND L24-26
 L28 6 L23 NOT L27

FILE 'WPIX' ENTERED AT 14:52:13 ON 11 MAR 2005
 L29 340318 E31-N05B/MC OR J5?/M0,M1,M2,M3,M4,M5,M6 OR (C07C045 OR C07C047
 E HYDROGEN/CN
 E E3+ALL
 L30 6 E3-6,E12
 E HYDROGEN/DRN
 E E3A+LL
 E HYDROGEN/DRN
 E E3+ALL
 L31 33729 1532/DRN OR R01532/DCN
 L32 344423 (?HYDROGEN OR H2? OR MOL? (1A) HYDROGEN OR PROTIUM)/BIX
 L33 49112 L29 AND L30-32
 L34 64568 (A01-E05 OR B10-B? OR C10-B?)/MC
 L35 288229 (H100 OR H101)/M0,M1,M2,M3,M4,M5,M6
 L36 229076 H102/M0,M1,M2,M3,M4,M5,M6
 L37 20418 L33 AND L35
 L38 15063 L37 AND L36
 L39 393 L38 AND H?/MC
 L40 302 L39 NOT (PY>2002 OR AY>2002 OR PRY>2002)
 L41 2638 (E11-D OR E11-F02 OR M25-D)/MC
 L42 5 L41 AND L40
 E WEI S/AU
 E SU W/AU
 L43 419 E3,E15
 E NELLI C/AU
 L44 2 E4
 L45 2 L43-44 AND L38
 L46 5 L42 NOT L45

FILE 'HCAPLUS' ENTERED AT 15:06:23 ON 11 MAR 2005

L47 2 L19 OR L27

=> b hcap
 FILE 'HCAPLUS' ENTERED AT 15:07:03 ON 11 MAR 2005
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FILE COVERS 1907 - 11 Mar 2005 VOL 142 ISS 12
 FILE LAST UPDATED: 10 Mar 2005 (20050310/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d all 147 tot

L47 ANSWER 1 OF 2 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 2004:80390 HCAPLUS
 DN 140:130121
 ED Entered STN: 01 Feb 2004
 TI Preparation of secondary amines by the catalytic reductive alkylation of carbonyl compounds with primary amines
 IN Su, Wei-yang; Nelli, Christopher H.
 PA Huntsman Petrochemical Corporation, USA
 SO U.S. Pat. Appl. Publ., 7 pp., Cont.-in-part of U.S. Ser. No. 200,361.
 CODEN: USXXCO
 DT Patent
 LA English
 IC ICM C07C029-26
 NCL 564472000: 564473000
 CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
 Section cross-reference(s): 23, 67

FAN.CNT 2

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2004019238	A1	20040129	US 2003-623293	20030718
US 2004015016	A1	20040122	US 2002-200361	20020722
PRAI US 2002-200361	A2	20020722		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
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US 2004019238	ICM	C07C029-26
	NCL	564472000: 564473000

OS CASREACT 140:130121: MARPAT 140:130121

AB A process for the reductive alkylation of primary amines [e.g., 1-amino-3-(dimethylamino)propane] to form secondary amines [e.g., 1-(isopropylamino)-3-(dimethylamino)propane] is described using the high-pressure reaction of the primary amines with a carbonyl compound alkylating agent (e.g., acetone) and hydrogen in the presence of a catalyst which comprises metallic palladium (e.g., Pd/C).

ST Secondary amine prepn catalytic reductive alkylation:
 isopropylaminodimethylaminopropane prepn

IT Charcoal
 RL: CAT (Catalyst use); USES (Uses)
 (catalyst support; preparation of secondary amines by the catalytic reductive alkylation of carbonyl compds. with primary amines)

IT Amines, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (diamines; preparation of secondary amines by the catalytic reductive alkylation of carbonyl compds. with primary amines)

IT Carbonyl compounds (organic), reactions
 Ketones, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (preparation of secondary amines by the catalytic reductive alkylation of carbonyl compds. with primary amines)

IT Amines, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (primary; preparation of secondary amines by the catalytic reductive alkylation of carbonyl compds. with primary amines)

IT Alkylation catalysts
 (reductive; Pd in the preparation of secondary amines by the reductive alkylation of carbonyl compds. with primary amines)

IT Alkylation
 (reductive; preparation of secondary amines by the catalytic reductive alkylation of carbonyl compds. with primary amines)

IT Amines, preparation
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (secondary; preparation of secondary amines by the catalytic reductive alkylation of carbonyl compds. with primary amines)

IT 7440-44-0, Activated carbon, uses
 RL: CAT (Catalyst use); USES (Uses)
 (activated, catalyst support; preparation of secondary amines by the catalytic reductive alkylation of carbonyl compds. with primary amines)

IT 7440-05-3, Palladium, uses
 RL: CAT (Catalyst use); USES (Uses)
 (catalyst; preparation of secondary amines by the catalytic reductive alkylation of carbonyl compds. with primary amines)

IT 67-64-1DP, Acetone, reductive alkylation products with Jeffamines and hydrogen 1333-74-0DP, Hydrogen, reductive alkylation products with Jeffamines and acetone 9046-10-0DP, Jeffamine D-230, reductive alkylation products with acetone and hydrogen 39423-51-3DP, Jeffamine T-403, reductive alkylation products with acetone and hydrogen 63905-13-5P 343595-80-2P
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (preparation of secondary amines by the catalytic reductive alkylation of carbonyl compds. with primary amines)

IT 67-64-1, Acetone, reactions 78-93-3, MEK, reactions 107-87-9, 2-Pentanone 108-10-1, MIBK 109-55-7, 1-Amino-3-(dimethylamino)propane 110-12-3, Methylisoamyl ketone 123-05-7 591-78-6, 2-Hexanone 1333-74-0, Hydrogen, reactions 2855-13-2, Isophorone diamine
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (preparation of secondary amines by the catalytic reductive alkylation of carbonyl compds. with primary amines)

L47 ANSWER 2 OF 2 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 2004:60193 HCAPLUS
 DN 140:113242
 ED Entered STN: 26 Jan 2004
 TI Preparation of secondary amines via the catalytic alkylation of primary amines with carbonyl compounds
 IN Su, Wei-yaug; Nelli, Christopher H.
 PA Huntsman Petrochemical Corporation, USA
 SO U.S. Pat. Appl. Publ., 4 pp.

CODEN: USXXCO

DT Patent
 LA English
 IC C07C029-26
 NCL 564446000: 564472000: 564473000
 CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
 Section cross-reference(s): 23, 48, 67

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2004015016	A1	20040122	US 2002-200361	20020722
	US 2004019238	A1	20040129	US 2003-623293	20030718
	WO 2004009529	A1	20040129	WO 2003-US22666	20030721
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				

PRAI US 2002-200361 A2 20020722

CLASS

PATENT NO. CLASS PATENT FAMILY CLASSIFICATION CODES

US 2004015016	ICM	C07C029-26
	NCL	564446000: 564472000: 564473000

OS CASREACT 140:113242: MARPAT 140:113242

AB A process for the reductive alkylation of primary amines (e.g., dimethylaminopropylamine) into secondary amines [e.g., 1-(dimethylamino)-3-(isopropylamino)propane] is described by the high-pressure reaction of the primary amine with an alkylating agent (e.g., a carbonyl compound such as acetone) and hydrogen in the presence of a catalyst which comprises metallic palladium.

ST dimethylaminopropylamine reductive alkylation acetone manuf
dimethylaminoisopropylaminopropane

IT Amines, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)
(diamines; preparation of secondary amines via the catalytic alkylation of primary amines with carbonyl compds.)

IT Carbonyl compounds (organic), reactions

Ketones, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of secondary amines via the catalytic alkylation of primary amines with carbonyl compds.)

IT Amines, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)
(primary; preparation of secondary amines via the catalytic alkylation of primary amines with carbonyl compds.)

IT Alkylation catalysts

(reductive, Pd; preparation of secondary amines via the catalytic alkylation of primary amines with carbonyl compds. using)

IT Alkylation

(reductive; preparation of secondary amines via the catalytic alkylation of primary amines with carbonyl compds. via)

IT Charcoal

RL: CAT (Catalyst use); USES (Uses)
(support; preparation of secondary amines via the catalytic alkylation of primary amines with carbonyl compds. using)

IT 7440-44-0. Activated carbon, uses

RL: CAT (Catalyst use); USES (Uses)
(activated, support; preparation of secondary amines via the catalytic

alkylation of primary amines with carbonyl compds. using)

IT 63905-13-5P 343595-80-2P
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (preparation of secondary amines via the catalytic alkylation of primary amines with carbonyl compds.)

IT 109-55-7, 1-Amino-3-(dimethylamino)propane 2855-13-2. Isophoronediamine
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (preparation of secondary amines via the catalytic alkylation of primary amines with carbonyl compds.)

IT 7440-05-3, Palladium, uses
 RL: CAT (Catalyst use); USES (Uses)
 (preparation of secondary amines via the catalytic alkylation of primary amines with carbonyl compds. using)

IT 67-64-1, Acetone, reactions 78-93-3, MEK, reactions 107-87-9,
 2-Pentanone 108-10-1, MIBK 110-12-3, Methyl isoamyl ketone 123-05-7
 591-78-6, 2-Hexanone
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (preparation of secondary amines via the catalytic alkylation of primary amines with carbonyl compds. using)

IT 1333-74-0, Hydrogen, reactions
 RL: RCT (Reactant); RGT (Reagent); RACT (Reactant or reagent)
 (preparation of secondary amines via the catalytic alkylation of primary amines with carbonyl compds. using)

=> d all 128 tot

L28 ANSWER 1 OF 6 HCPLUS COPYRIGHT 2005 ACS on STN
 AN 2004:1079727 HCPLUS
 DN 142:55652
 ED Entered STN: 17 Dec 2004
 TI Method for producing organic compounds by substituting halogen atoms
 IN Funaki, Setsuko; Taniguchi, Yoshiteru; Nobori, Tadahito; Yamamoto, Yoshihiro; Hara, Isao; Hayashi, Takaomi; Mizutani, Kazumi; Kiyono, Shinji
 PA Mitsui Chemicals, Inc., Japan
 SO Eur. Pat. Appl., 27 pp.
 CODEN: EPXXDW
 DT Patent
 LA English
 IC ICM C07B039-00
 ICS C07B037-04; C07B041-00; C07B043-00; C07D307-24; C07D307-14; C07C017-20; C07C253-14; C07C255-19; C07C331-18; C07D307-32; C07C319-14; C07C045-63; C07C205-02; C07C209-08; C07F009-06
 CC 21-1 (General Organic Chemistry)
 Section cross-reference(s): 23, 24, 25, 27, 29

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI EP 1486479	A1	20041215	EP 2004-253380	20040607
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR				
JP 2005023057	A2	20050127	JP 2003-389015	20031119
US 2004256743	A1	20041223	US 2004-864533	20040610

PRAI JP 2003-168116 A 20030612

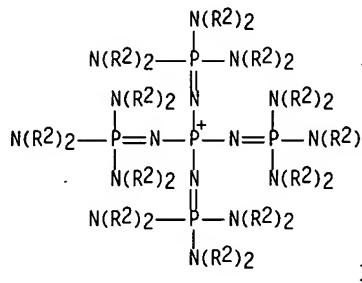
CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
EP 1486479	ICM	C07B039-00
	ICS	C07B037-04; C07B041-00; C07B043-00; C07D307-24; C07D307-14; C07C017-20; C07C253-14; C07C255-19; C07C331-18; C07D307-32; C07C319-14; C07C045-63; C07C205-02; C07C209-08; C07F009-06
EP 1486479	ECLA	C07B037/04; C07B041/00; C07B043/00; C07C017/2006+23/08;

JP 2005023057 FTERM C07C029/124; C07C067/10+69/007; C07C067/287+69/003;
 C07C253/14; C07C253/30; C07C331/14; C07D307/14;
 C07D307/24; C07D307/32C

US 2004256743 ECLA C07B037/04; C07B041/00; C07B043/00; C07C017/2006+23/08;
 C07C029/124; C07C067/10+69/007; C07C067/287+69/003;
 C07C253/14; C07C253/30; C07C331/14; C07D307/14;
 C07D307/24; C07D307/32C

OS CASREACT 142:55652
 GI



AB The invention pertains to a method in which a halogen atom of an organic compound is replaced with a group derived from a nucleophilic agent, at high yield and high efficiency, by the following method which includes a step of reacting the nucleophilic agent with an organic material having a halogen atom bonded to a carbon atom having four .sigma. bonds, more specifically: a method for producing organic compound R1Q [R1 = alkane, cycloalkane, ester, ketone, lactone, heterocycle, aryl, nitrile, benzyl; Q = an inorg. acid or an active hydrogen compound (derived by eliminating a proton), a halogen atom (different from the halogen atom in the organic starting material having the halogen atom bonded to the carbon atom having the four .sigma. bonds)], the method includes a step of reacting a compound MQa (M = an alkali metal atom, an alkali earth metal atom, or a rare earth metal atom; a = 1 - 3) with an organic starting material, R1X [X = halogen (having at least one halogen atom bonded to a carbon atom having four .sigma. bonds so as to replace the halogen atom in the organic starting material with Q)] in the presence of phosphonium compound I.cndot.Z- [Z- = anion (derived by eliminating a proton from an inorg. acid or an active hydrogen compound); R2 = C1-10 hydrocarbon group (preferably Me, Et); N(R2)2 = a ring (e.g., pyrrolidine, piperidine)]. Thus, 3-chlorotetrahydrofuran was treated with NaCN in DMF containing catalytic phosphazinium compound I.cndot.C1- (R2 = Me) to give 85% tetrahydrofuran-3-carbonitrile after 6 h.

ST halogen contg org compd reaction nucleophile; hydrocarbon substituted prep; chlorocarbon nucleophilic substitution phosphonium phosphoranylideneamino salt catalyst; inorg acid alkali alk rare earth salt reaction chlorocarbon; phosphazinium salt catalyst nucleophilic substitution chlorocarbon

IT Hydrocarbons, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (active methylene, salts, alkali, alkaline and rare earth metal; method for producing organic compds. by substituting halogen atoms with inorg. acids or active methylene compds.)

IT Amines, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (aliphatic, secondary, alkali, alkaline and rare earth metal salts, substitution by, of chlorocarbons; method for producing organic compds. by substituting halogen atoms with inorg. acids or active methylene compds.)

IT Alcohols, reactions
 Carbonyl compounds (organic), reactions
 Thiols (organic), reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (alkali, alkaline and rare earth metal salts, substitution by, of chlorocarbons; method for producing organic compds. by substituting halogen atoms with inorg. acids or active methylene compds.)

IT Cyanides (inorganic), reactions
 Halides
 Hydroxides (inorganic)
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (alkali, alkaline and rare earth metal, substitution by, of chlorocarbons; method for producing organic compds. by substituting halogen atoms with inorg. acids or active methylene compds.)

IT Azides
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (alkali, alkaline and rare earth, substitution by, of chlorocarbons; method for producing organic compds. by substituting halogen atoms with inorg. acids or active methylene compds.)

IT Azides
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (alkyl azides; method for producing organic compds. by substituting halogen atoms with inorg. acids or active methylene compds.)

IT Amines, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (aryl, secondary, alkali, alkaline and rare earth metal salts, substitution by, of chlorocarbons; method for producing organic compds. by substituting halogen atoms with inorg. acids or active methylene compds.)

IT Cycloalkanes
 Heterocyclic compounds
 Hydrocarbons, reactions
 Lactones
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (chloro, nucleophilic substitution of; method for producing organic compds. by substituting halogen atoms with inorg. acids or active methylene compds.)

IT Aromatic compounds
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (chloroarom., nucleophilic substitution of; method for producing organic compds. by substituting halogen atoms with inorg. acids or active methylene compds.)

IT Alkali metals, reactions
 Alkaline earth metals
 Rare earth metals, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (derivs., nucleophilic substitution by, of chlorocarbons; method for producing organic compds. by substituting halogen atoms with inorg. acids or active methylene compds.)

IT Carboxylic acids, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (esters, halo, chloro, nucleophilic substitution of; method for producing organic compds. by substituting halogen atoms with inorg. acids

or active methylene compds.)

IT Carboxylic acids, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (esters, alpha.-metallo, alkali, alkaline and rare earth, substitution by, of chlorocarbons; method for producing organic compds. by substituting halogen atoms with inorg. acids or active methylene compds.)

IT Carboxylic acids, preparation
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (esters; method for producing organic compds. by substituting halogen atoms with inorg. acids or active methylene compds.)

IT Hydrocarbons, preparation
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (halo, non-chloro containing; method for producing organic compds. by substituting halogen atoms with inorg. acids or active methylene compds.)

IT Phenols, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (hydroxy and dihydroxy, alkali, alkaline and rare earth metal salts, substitution by, of chlorocarbons; method for producing organic compds. by substituting halogen atoms with inorg. acids or active methylene compds.)

IT Acids, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (inorg.. salts, alkali, alkaline and rare earth metal; method for producing organic compds. by substituting halogen atoms with inorg. acids or active methylene compds.)

IT Amines, preparation
 Aromatic compounds
 Ethers, preparation
 Nitriles, preparation
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (method for producing organic compds. by substituting halogen atoms with inorg. acids or active methylene compds.)

IT Nucleophiles
 (nucleophilic substitution by, of chlorocarbons; method for producing organic compds. by substituting halogen atoms with inorg. acids or active methylene compds.)

IT Alkyl chlorides
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (nucleophilic substitution of; method for producing organic compds. by substituting halogen atoms with inorg. acids or active methylene compds.)

IT Substitution reaction, nucleophilic
 (of chlorocarbons in the presence of phosphazenum salts; method for producing organic compds. by substituting halogen atoms with inorg. acids or active methylene compds.)

IT Nitrites
 Sulfides, preparation
 Thiocyanates
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (organic; method for producing organic compds. by substituting halogen atoms with inorg. acids or active methylene compds.)

IT Phosphonium compounds
 RL: CAT (Catalyst use); USES (Uses)
 (phosphazenum salts, nucleophilic substitution of chlorocarbons in the presence of; method for producing organic compds. by substituting halogen atoms with inorg. acids or active methylene compds.)

IT Carboxylic acids, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (salts, alkali, alkaline and rare earth metal, substitution by, of chlorocarbons; method for producing organic compds. by substituting halogen atoms with inorg. acids or active methylene compds.)

IT Ketones, reactions
 Nitriles, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)
 (.alpha.-chloro. nucleophilic substitution of; method for producing organic compds. by substituting halogen atoms with inorg. acids or active methylene compds.)

IT 78-97-7P. 2-Hydroxypropionitrile 91-01-0P. Benzhydrol 120-45-6P.
 1-Phenylethyl propionate 450-95-3P. 2-Fluoroacetophenone 601-76-3P.
 1,1-Dinitropropane 1481-36-3P. Fluorocyclopentane 1738-36-9P.
 Methoxyacetonitrile 2081-44-9P. 4-Hydroxytetrahydropyran 2163-44-2P
 2206-38-4P. Cyclohexyl phenyl ether 4254-02-8P. Cyanocyclopentane
 4538-80-1P. 1-Fluoro-3,3-dimethyl-2-butanone 13310-75-3P. 4-Cyanoheptane
 13888-04-5P 14631-44-8P. 3-Cyanotetrahydrofuran 16169-82-7P.
 1-Methyl-2-propynyl acetate 18677-40-2P. 3-(Butylmercapto)-2-butanone
 19354-27-9P. Tetrahydrofurfuryl methyl ether 20654-42-6P. 2-Cyanothexane
 34112-17-9P. 1,2-Dicyanocyclohexane 36320-68-0P 51443-95-9P.
 Fluorocycloheptane 85182-08-7P 108975-83-3P. 9-(Diethylamino)fluorene
 150711-45-8P 181289-17-8P 476415-60-8P 808146-72-7P. Ethyl
 3-cyano-4-phenylbutyrate 808146-73-8P. Ethyl 4-benzyloxy-3-cyanobutyrate
 808146-74-9P. Butyric acid fluoromethyl ester 808146-75-0P. Methyl
 2-(butylmercapto)-2-phenylacetate 808146-76-1P. Methyl
 3-(thiocyanato)butyrate 808146-77-2P. 2-Iidotetrahydrofuran

RL: SPN (Synthetic preparation): PREP (Preparation)
 (method for producing organic compds. by substituting halogen atoms with inorg. acids or active methylene compds.)

IT 64-19-7D. Acetic acid, metal salts 67-56-1D. Methanol, metal salts
 74-90-8D. Hydrogen cyanide, metal salts 105-53-3D. Diethyl
 malonate, metal salts 108-95-2D. Phenol, metal salts 109-79-5D.
 1-Butanethiol, metal salts 109-89-7D. Diethylamine, metal salts
 124-41-4. Sodium methoxide 127-09-3. Sodium acetate 137-40-6. Sodium
 propionate 139-02-6. Sodium phenoxide 141-82-2D. Malonic acid, diester
 metal salts 143-33-9. Sodium cyanide 372-09-8D. Cyanoacetic acid.
 ester metal salts 463-56-9D. Thiocyanic acid, metal salts 540-72-7.
 Sodium thiocyanide 541-50-4D. Acetoacetic acid, ester metal salts
 816-43-3. Lithium diethylamide 996-82-7. Diethyl sodiomalonate
 1310-73-2. Sodium hydroxide, reactions 4779-86-6. Sodium butylthiolate
 7664-39-3D. Hydrogen fluoride, metal salts 7681-82-5. Sodium
 iodide, reactions 7732-18-5D. Water, metal salts 7758-09-0. Potassium
 nitrite 7782-77-6D. Nitrous acid, metal salts 7782-79-8D.
 Hydrogen azide, metal salts 7789-23-3. Potassium fluoride
 10034-85-2D. Hydrogen iodide, metal salts 26628-22-8. Sodium
 azide

RL: RCT (Reactant); RACT (Reactant or reagent)
 (nucleophilic substitution by. of chlorocarbons; method for producing organic compds. by substituting halogen atoms with inorg. acids or active methylene compds.)

IT 102299-22-9. Tris[tris(dimethylamino)phosphoranylideneamino]phosphine
 oxide 122951-89-7 195212-22-7 676998-36-0 808146-81-8.
 Tetrakis[tris(diethylamino)phosphoranylideneamino]phosphonium chloride

RL: CAT (Catalyst use): USES (Uses)
 (nucleophilic substitution of chlorocarbons in the presence of; method for producing organic compds. by substituting halogen atoms with inorg. acids or active methylene compds.)

IT 90-99-3. Chlorodiphenylmethane 107-14-2. Chloroacetonitrile 532-27-4.
 2-Chloroacetophenone 542-18-7. Chlorocyclohexane 600-25-9.
 1-Chloro-1-nitropropane 638-28-8. 2-Chlorohexane 672-65-1.
 .alpha.-Methylbenzyl chloride 822-86-6. trans-1,2-Dichlorocyclohexane
 930-28-9. Chlorocyclopentane 998-95-8. 4-Chloroheptane 1617-17-0.
 2-Chloropropionitrile 1768-64-5. 4-Chlorotetrahydropyran 2453-46-5.
 Chlorocycloheptane 3003-84-7. 2-(Chloromethyl)tetrahydrofuran
 4091-39-8. 3-Chloro-2-butanone 5061-21-2. .alpha.-Bromo-.gamma.-
 butyrolactone 6513-13-9. Ethyl 3-chlorovalerate 6630-65-5.
 9-Chlorofluorene 7425-45-8. Ethyl 2-chlorobutyrate 7425-48-1
 7476-66-6. Methyl 2-chloro-2-phenylacetate 13369-70-5.
 2-Chlorotetrahydrofuran 13547-70-1. 1-Chloro-3,3-dimethyl-2-butanone
 19311-38-7. 3-Chlorotetrahydrofuran 21020-24-6. 3-Chloro-1-butyne

33657-49-7, Chloromethyl butyrate 89181-22-6, 3-(Chloromethyl)tetrahydrofuran 808146-78-3, Ethyl 3-chloro-4-phenylbutyrate 808146-79-4, Ethyl 4-(benzyloxy)-3-chlorobutyrate 808146-80-7, Ethyl 3-chloro-5-methylcaproate
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (nucleophilic substitution of; method for producing organic compds. by substituting halogen atoms with inorg. acids or active methylene compds.)

RE.CNT 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Jenner, G; TETRAHEDRON 2002, V58(21), P4311 HCPLUS
 (2) Mitsui Chemicals Inc; EP 1275630 A 2003 HCPLUS

L28 ANSWER 2 OF 6 HCPLUS COPYRIGHT 2005 ACS on STN

AN 2004:1011969 HCPLUS

DN 142:6566

ED Entered STN: 24 Nov 2004

TI Process for the synthesis of hexanitrohexaazaisowurtzitane in two steps from by cyclization of .alpha...beta.-dicarbonyls with primary amines and nitration

IN Cagnon, Guy; Eck, Genevieve; Herve, Gregoire; Jacob, Guy

PA SNPE Materiaux Energetiques, Fr.

SO Eur. Pat. Appl., 10 pp.

CODEN: EPXXDW

DT Patent

LA French

IC ICM C07D487-22

ICS C06B025-34

CC 28-23 (Heterocyclic Compounds (More Than One Hetero Atom))

Section cross-reference(s): 45

FAN.CNT 1

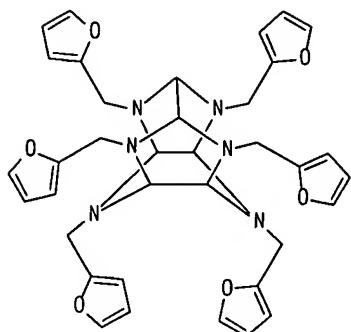
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI EP 1479683	A1	20041124	EP 2004-291080	20040427
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR				
FR 2855174	A1	20041126	FR 2003-6160	20030522
US 2004260086	A1	20041223	US 2004-833025	20040428
JP 2005041860	A2	20050217	JP 2004-153353	20040524
PRAI FR 2003-6160	A	20030522		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
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EP 1479683	ICM	C07D487-22
		ICS C06B025-34
EP 1479683	ECLA	C07D487/22+255E+241C+235C+235C
FR 2855174	ECLA	C07D487/22+255E+241C+235C+235C
US 2004260086	ECLA	C07D487/22+255E+241C+235C+235C
JP 2005041860	FTERM	4C050/AA03; 4C050/BB08; 4C050/CC08; 4C050/DD02; 4C050/EE06; 4C050/FF01; 4C050/GG01; 4C050/HH02; 4C050/HH03; 4C050/HH04

GI



III

AB The invention is related to an improved process for the synthesis of hexanitrohexaazaisowurtzitane (HNIW), 2,4,6,8,10,12-hexanitro-2,4,6,8,10,12-hexaazatetracyclo[5.5.0.05,9.03,11]-dodecane (I), by cyclization of $\alpha\ldots\beta\ldots$ -dicarbonyls, e.g. glyoxal, with primary amines of formula RNH_2 , and nitration of the hexasubstituted derivative of hexaazaisowurtzitane of formula 2,4,6,8,10,12-R-2,4,6,8,10,12-hexaazatetracyclo[5.5.0.05,9.03,11]-dodecane (II) [wherein R = heteroarylmethyl, allyl, propargyl, trimethylsilylethyl, naphthylmethyl, sulfonyl]. For example, cyclization of glyoxal with 2-(aminomethyl)furan in the presence of $HCOOH/MeCN/H_2O$ at 2-10. $^\circ$ for 1 h and 10-15. $^\circ$ for 2 h gave III in 60% yield with respect to glyoxal. Nitration of III with HNO_3/H_2SO_4 at 10-65. $^\circ$ for 4 h under Ar gave 12% I.

ST hexanitrohexaazaisowurtzitane HNIW synthesis cyclization amine dicarbonyl nitration sulfonitic acid

IT Amines, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(primary, starting materials; synthesis of hexanitrohexaazaisowurtzitane by cyclization of $\alpha\ldots\beta\ldots$ -dicarbonyls with primary amines and nitration)

IT Cyclization
Nitration
(synthesis of hexanitrohexaazaisowurtzitane by cyclization of $\alpha\ldots\beta\ldots$ -dicarbonyls with primary amines and nitration)

IT Carbonyl compounds (organic), reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
($\alpha\ldots\beta\ldots$ -dicarbonyl compds. starting materials; synthesis of hexanitrohexaazaisowurtzitane by cyclization of $\alpha\ldots\beta\ldots$ -dicarbonyls with primary amines and nitration)

IT 107-11-9, Allylamine 617-89-0, 2-(Aminomethyl)furan
RL: RCT (Reactant); RACT (Reactant or reagent)
(amine starting material; synthesis of hexanitrohexaazaisowurtzitane by cyclization of $\alpha\ldots\beta\ldots$ -dicarbonyls with primary amines and nitration)

IT 797057-87-5P 797057-89-7P
RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(intermediate; synthesis of hexanitrohexaazaisowurtzitane by cyclization of $\alpha\ldots\beta\ldots$ -dicarbonyls with primary amines and nitration)

IT 13826-86-3, Nitronium tetrafluoroborate
RL: RCT (Reactant); RGT (Reagent); RACT (Reactant or reagent)
(nitration agent; synthesis of hexanitrohexaazaisowurtzitane by cyclization of $\alpha\ldots\beta\ldots$ -dicarbonyls with primary amines and nitration)

IT 7697-37-2, Nitric acid, reactions
RL: RCT (Reactant); RGT (Reagent); RACT (Reactant or reagent)

(nitration reagent; synthesis of hexanitrohexaazaisowurtzitane by cyclization of $\alpha\ldots\beta$ -dicarbonyls with primary amines and nitration)

IT 135285-90-4P, Hexanitrohexaazaisowurtzitane 797057-79-5P 797057-82-0P
 797057-86-4P 797057-90-0P 797057-91-1P 797057-92-2P
 RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)
 (synthesis of hexanitrohexaazaisowurtzitane by cyclization of $\alpha\ldots\beta$ -dicarbonyls with primary amines and nitration)

IT 7664-93-9, Sulfuric acid, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (synthesis of hexanitrohexaazaisowurtzitane by cyclization of $\alpha\ldots\beta$ -dicarbonyls with primary amines and nitration)

IT 118-31-0, [(1-Naphthyl)methyl]amine 2450-71-7, Propargylamine
 3731-52-0, 3-(Aminomethyl)pyridine 4360-51-4, Cinnamylamine
 27757-85-3, 2-(Aminomethyl)thiophene 73155-25-6, 4-Chlorobenzenesulfenamide
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (synthesis of hexanitrohexaazaisowurtzitane by cyclization of $\alpha\ldots\beta$ -dicarbonyls with primary amines and nitration)

IT 107-22-2, Glyoxal
 RL: RCT (Reactant); RACT (Reactant or reagent)
 ($\alpha\ldots\beta$ -dicarbonyl starting material; synthesis of hexanitrohexaazaisowurtzitane by cyclization of $\alpha\ldots\beta$ -dicarbonyls with primary amines and nitration)

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Cordant Tech Inc; WO 0052011 A 2000 HCPLUS
 (2) Nielsen, A; US 5693794 A 1997 HCPLUS
 (3) Wardle, R; US 6147209 A 2000 HCPLUS

L28 ANSWER 3 OF 6 HCPLUS COPYRIGHT 2005 ACS on STN
 AN 2004:384405 HCPLUS
 DN 142:218727
 ED Entered STN: 13 May 2004
 TI Reductive amination of some carbonyl compounds catalyzed by platinum metals
 AU Yada, Satoru; Takagi, Yuzuru
 CS Dep. Chem., Coll. Humanities Sci., Nihon Univ., Tokyo, 156-8550, Japan
 SO Kenkyu Kiyo - Nihon Daigaku Bunrigakubu Shizen Kagaku Kenkyusho (2004), 39, 349-385
 CODEN: NDBSAL; ISSN: 0369-3562
 PB Nihon Daigaku Bunrigakubu Shizen Kagaku Kenkyusho
 DT Journal
 LA Japanese
 CC 21-2 (General Organic Chemistry)
 AB The reductive amination of some carbonyl compds. over platinum metals have been studied in ethanol at 50-200.degree. and the hydrogen pressure of 7-8 MPa to compare the selectivity of these metals for the formation of the primary amine, the secondary amine, the tertiary amine and the alc., resp. In the reductive amination of nonanal, the yield of the primary amine increased in order: Pd < Os < Pt < Rh < Ir < Ru. A high yield of the primary amine was obtained with Ru (87%), while over Pd the yield was only 24% which was the smallest of the metals investigated. Over Pd and Os catalysts the secondary amine was formed in larger amts. than the primary amine. The yield of primary amine was not increased by the addition of ammonium chloride. On the other hand, the formation of the tertiary amine was greatly increased over Pd catalyst from 6% to 45% in the presence of ammonium chloride. With 2-nonenone, the major product was the corresponding primary amine over platinum metals. In contrast to the results with nonanal, no tertiary amine was found in the products. The secondary amine was also formed not at all (Pd, Ru and Rh) or only to a slight extent (Os), except over Pt and Ir which it was formed in 17% and 12% yields, resp. Over the catalysts other than Pd, Rh and Ir, the

corresponding alc. was formed in larger amts. than in the case of nonanal. Over Pd and Rh the alc. was formed not at all or only slightly, and the primary amine was formed in 100% and 98% selectivities, resp. 3- And 5-nonenes were less reactive than 2-nonenone with Pd, Pt, Rh and Ru; the reactivity decreased in the order: 2- > 3- > 5-nonenone. In the reductive amination of 4-t-butylcyclohexanone, the selectivities for the formation of primary amine and the secondary amine depend on the platinum metals. The yield of the primary amine increased in the order Pt < Os < Ir < Pd < Rh < Ru and was between 59-97%. The reaction route and the stereochem. of the reductive amination of 4-t-butylcyclohexanone were discussed on the basis of the formation and hydrogenation of intermediates such as imine and Schiff base. Although the reductive amination of menthone gave three isomeric primary amines, no secondary amines were detected. The total yields of primary amine isomers ranged between 24-84%, and increased in the order 5% Pt-C < 5% Rh-C < 5% Ru-C < 5% Pd-C. Isomenthone afforded primary amine isomers in lower yields than menthone. The observed stereochem. selectivity as well as the difference in reactivities of menthone and isomenthone have been accounted for by considering this tautomerism. The reductive amination of (+)-camphor did not proceed under the temperature below 100.degree.. At 200.degree., the yield of primary amine isomers increased in the order 5% Ru-C < 5% Pt-C < 5% Rh-C < 5% Pd-C, while the corresponding alc. isomers as byproducts were preferentially produced on 5% Ru-C. In the reaction at a high temperature, the formation of N-alkylamines was observed. In general, the reductive amination of more sterically hindered alicyclic ketones proceeded very smoothly with the metal catalysts supported on a carrier such as carbon than unsupported metal catalysts. The reductive amination of acetophenone gave the corresponding alc. in predominant amts. over all of the platinum metals investigated. In the presence of ammonium chloride as additive, the formation of alc. was depressed, resulting in increased selectivities to the primary amine. The different reactivities and selectivities in the reductive amination of the carbonyl compds. have been discussed on the basis of the formation and reaction of the intermediates such as imines, amines and Schiff bases and also on the structure of the carbonyl compds.

ST reductive amination carbonyl compd platinum metal catalyst
 IT Ketones, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (cyclic; reductive amination of some carbonyl compds. catalyzed by platinum metals)
 IT Amines, preparation
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (primary; reductive amination of some carbonyl compds. catalyzed by platinum metals)
 IT Alcohols, preparation
 RL: BYP (Byproduct); PREP (Preparation)
 (reductive amination of some carbonyl compds. catalyzed by platinum metals)
 IT Aldehydes, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reductive amination of some carbonyl compds. catalyzed by platinum metals)
 IT Carbonyl compounds (organic), reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reductive amination of some carbonyl compds. catalyzed by platinum metals)
 IT Ketones, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reductive amination of some carbonyl compds. catalyzed by platinum metals)
 IT Amination catalysts
 (reductive, ruthenium, platinum, rhodium, or palladium; reductive amination of some carbonyl compds. catalyzed by platinum metals)
 IT Amination
 (reductive; reductive amination of some carbonyl compds. catalyzed by

platinum metals)

IT Amines, preparation
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (secondary; reductive amination of some carbonyl compds.
 catalyzed by platinum metals)

IT Amines, preparation
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (tertiary; reductive amination of some carbonyl compds. catalyzed by
 platinum metals)

IT 7440-02-0, Raney nickel, uses
 RL: CAT (Catalyst use); USES (Uses)
 (catalysts; reductive amination of some carbonyl compds. catalyzed by
 platinum metals)

IT 98-52-2P, 4-tert-Butylcyclohexanol 98-85-1P, .alpha.-Phenethyl alcohol
 143-08-8P, 1-Nonanol 464-15-3P, Camphane 464-43-7P 628-99-9P,
 2-Nonanol 75419-01-1P 75419-02-2P
 RL: BYP (Byproduct); PREP (Preparation)
 (reductive amination of some carbonyl compds. catalyzed by platinum
 metals)

IT 7439-88-5, Iridium, uses 7440-04-2, Osmium, uses 7440-05-3, Palladium,
 uses 7440-05-3D, Palladium, supported on carbon 7440-06-4, Platinum,
 uses 7440-06-4D, Platinum, supported on carbon 7440-16-6, Rhodium,
 uses 7440-16-6D, Rhodium, supported on carbon 7440-18-8, Ruthenium,
 uses 7440-18-8D, Ruthenium, supported on carbon 7440-48-4, Cobalt,
 uses
 RL: CAT (Catalyst use); USES (Uses)
 (reductive amination of some carbonyl compds. catalyzed by platinum
 metals)

IT 98-53-3, 4-tert-Butylcyclohexanone 98-86-2, Acetophenone, reactions
 124-19-6, Nonanal 464-49-3, (+)-Camphor 502-56-7, 5-Nonanone
 631-61-8, Ammonium acetate 821-55-6, 2-Nonanone 925-78-0, 3-Nonanone
 2216-51-5, (-)-Menthol 7664-41-7, Ammonia, reactions 12125-02-9,
 Ammonium chloride, reactions 23283-97-8, (+)-Isomenthol
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reductive amination of some carbonyl compds. catalyzed by platinum
 metals)

IT 1196-31-2P, (+)-Isomenthone 14073-97-3P, (-)-Menthone 839716-18-6P,
 N-(4-tert-Butylcyclohexylidene)(4-tert-butylcyclohexyl)amine
 839716-25-5P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (reductive amination of some carbonyl compds. catalyzed by platinum
 metals)

IT 112-20-9P, Nonylamine 618-36-0P, .alpha.-Phenethylamine 2044-21-5P,
 Dinonylamine 2044-22-6P, Trinonylamine 2163-33-9P,
 cis-4-tert-Butylcyclohexylamine 2163-34-0P, trans-4-tert-
 Butylcyclohexylamine 2198-45-0P, 1-Butylpentylamine 5400-88-4P,
 4-tert-Butylcyclohexylamine 10024-74-5P, Bis(1-phenylethyl)amine
 13205-58-8P, 1-Methyloctylamine 13280-20-1P, Acetophenone imine
 25102-87-8P 32511-34-5P 33787-95-0P, 1-Ethylheptylamine 36653-37-9P,
 5-Nonanimine 80516-56-9P 98171-03-0P, Dibornylamine 123436-19-1P
 123485-39-2P 123485-40-5P 161585-75-7P, 1,1-Bis(nonylideneamino)nonane
 161585-76-8P, N-Nonylidenedenonylamine 161585-77-9P, 1-(Dinonylaminoo)-1-
 nonene 170555-27-8P, Bis(4-tert-butylcyclohexyl)amine 197958-59-1P,
 Bis(1-ethylheptyl)amine 213979-89-6P, Bis(1-methyloctyl)amine
 213979-90-9P, Bis(1-butylpentyl)amine 213979-91-0P, 2-Nonanimine
 213979-92-1P, 3-Nonanimine 213979-93-2P, N-(1-Methyloctylidene)-1-
 methyloctylamine 213979-94-3P, N-(1-Ethylheptylidene)-1-ethylheptylamine
 213979-95-4P, N-(1-Butylpentylidene)-1-butylpentylamine 654065-57-3P
 839716-19-7P, N-(Cyclohexylidene)(4-tert-butylcyclohexyl)amine
 839716-20-0P 839716-21-1P 839716-22-2P 839716-23-3P 839716-24-4P
 839716-26-6P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (reductive amination of some carbonyl compds. catalyzed by platinum

metals)

L28 ANSWER 4 OF 6 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 2002:386170 HCAPLUS
 DN 137:294520
 ED Entered STN: 23 May 2002
 TI A scrutiny on the reductive amination of carbonyl compounds catalyzed by homogeneous Rh(I) diphosphane complexes
 AU Tararov, Vitali I.; Kadyrov, Renat; Riermeier, Thomas H.; Borner, Armin
 CS Institut fur Organische Katalyseforschung an der Universitat Rostock e.V.. Rostock, 18055, Germany
 SO Advanced Synthesis & Catalysis (2002), 344(2), 200-208
 CODEN: ASCAF7; ISSN: 1615-4150
 PB Wiley-VCH Verlag GmbH
 DT Journal
 LA English
 CC 21-2 (General Organic Chemistry)
 Section cross-reference(s): 22
 OS CASREACT 137:294520
 AB The reductive amination of a series of aldehydes with secondary amines and H₂ in the presence of a homogeneous Rh-diphosphane catalyst was studied in order to establish a general mechanism of this reaction and to identify conditions for the improvement of the amine/alc. ratio in the product. Catalysts used in this study included [1.4-butanediylbis[diphenylphosphine-.kappa.P]][(1.2.5.6-.eta.)-1.5-cyclooctadiene]rhodium(1+) tetrafluoroborate(1-) [[Rh(dppb)(COD)]⁺] and [1.4-butanediylbis[diphenylphosphine]-P,P']bis(methanol)rhodium(1+) tetrafluoroborate(1-). Several possible intermediates as constituents of changing equilibrium like half-aminals, N,O-acetals and aminals were observed in the reaction mixture by means of ¹H NMR spectroscopy. In individual trials, these compds. could be successfully hydrogenated under the conditions applied for reductive amination (50 bar H₂ pressure, MeOH). Some evidence is accumulated that half-aminals and N,O-acetals might be key intermediates of the reductive amination. Moreover, it was found that the formation of the undesired product alc. is likely based on the reduction of the starting carbonyl compound. However, due to numerous equilibrium consisting of several intermediates, general conclusions are hard to be drawn. Proof will be given that, in several cases, the efficiency of the reductive amination of aliphatic aldehydes can be significantly improved by prehydrogenation of the cationic [Rh(dppb)(COD)]⁺ complex.
 ST reductive amination secondary amine rhodium; amination homogeneous catalysis rhodium phosphane redn
 IT Amines, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (alicyclic; reductive amination of carbonyl compds. catalyzed by homogeneous rhodium diphosphane complexes)
 IT Aldehydes, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (aliphatic; reductive amination of carbonyl compds. catalyzed by homogeneous rhodium diphosphane complexes)
 IT Aldehydes, preparation
 Amines, preparation
 RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
 (aminals; reductive amination of carbonyl compds. catalyzed by homogeneous rhodium diphosphane complexes)
 IT Alicyclic compounds
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (amines; reductive amination of carbonyl compds. catalyzed by homogeneous rhodium diphosphane complexes)
 IT Aldehydes, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (aromatic; reductive amination of carbonyl compds. catalyzed by homogeneous rhodium diphosphane complexes)

IT Substituent effects
(reductive amination of carbonyl compds. catalyzed by homogeneous rhodium diphosphane complexes)

IT Acetals
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(reductive amination of carbonyl compds. catalyzed by homogeneous rhodium diphosphane complexes)

IT Amines, reactions
Carbonyl compounds (organic), reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(reductive amination of carbonyl compds. catalyzed by homogeneous rhodium diphosphane complexes)

IT Amination
(reductive, kinetics; reductive amination of carbonyl compds. catalyzed by homogeneous rhodium diphosphane complexes)

IT Amination
Amination catalysts
(reductive; reductive amination of carbonyl compds. catalyzed by homogeneous rhodium diphosphane complexes)

IT Amines, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(secondary; reductive amination of carbonyl compds. catalyzed by homogeneous rhodium diphosphane complexes)

IT 100-51-6P, Benzenemethanol, preparation 2238-12-2P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

IT 79255-71-3, [1,4-Butanediylbis[diphenylphosphine-.kappa.P]][(1,2,5,6-eta.)-1,5-cyclooctadiene]rhodium(1+) tetrafluoroborate(1-) 83288-25-9, [1,4-Butanediylbis[diphenylphosphine]-P,P']bis(methanol)rhodium(1+) tetrafluoroborate(1-)
RL: CAT (Catalyst use); USES (Uses)
(reductive amination of carbonyl compds. catalyzed by homogeneous rhodium diphosphane complexes)

IT 93-53-8, .alpha.-Methylbenzenacetraldehyde 96-17-3, 2-Methylbutanal
100-52-7, Benzaldehyde, reactions 104-88-1, 4-Chlorobenzaldehyde, reactions 109-05-7, 2-Methylpiperidine 109-89-7, Diethylamine, reactions 110-89-4, Piperidine, reactions 123-08-0, 4-Hydroxybenzaldehyde 123-11-5, 4-Methoxybenzaldehyde, reactions 123-75-1, Pyrrolidine, reactions 124-13-0, Octanal 124-40-3, Dimethylamine, reactions 555-16-8, 4-Nitrobenzaldehyde, reactions 5351-11-1, 1-[(Butoxy)phenylmethyl]piperidine 408529-24-8, .alpha.-Phenyl-1-Piperidinemethanol
RL: RCT (Reactant); RACT (Reactant or reagent)
(reductive amination of carbonyl compds. catalyzed by homogeneous rhodium diphosphane complexes)

IT 2538-76-3P, 1,1'-(Phenylmethylene)bis[piperidine] 24401-44-3P, 1-(2-Phenyl-1-propenyl)piperidine 468756-62-9P, .alpha.-Phenyl-1-Piperidinemethanol-d 468756-64-1P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(reductive amination of carbonyl compds. catalyzed by homogeneous rhodium diphosphane complexes)

IT 103-83-3P 772-54-3P 1123-85-9P, .beta.-Methylbenzeneethanol 2905-56-8P, 1-(Phenylmethyl)piperidine 7335-02-6P, 1-Octylpiperidine 29897-82-3P, 1-Benzylpyrrolidine 36794-50-0P, 1-(2-Phenylpropyl)piperidine 46441-11-6P, 1-[(4-Methoxyphenyl)methyl]piperidine 56234-43-6P, 1-(2-Methyl-2-phenylethyl)piperidine 59507-42-5P, 1-[(4-Chlorophenyl)methyl]piperidine 73152-41-7P, 4-(1-Piperidinylmethyl)phenol 170964-17-7P, 1-(2-Methylbutyl)piperidine
RL: SPN (Synthetic preparation); PREP (Preparation)
(reductive amination of carbonyl compds. catalyzed by homogeneous rhodium diphosphane complexes)

RE.CNT 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD

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L28 ANSWER 5 OF 6 HCPLUS COPYRIGHT 2005 ACS on STN

AN 2002:314433 HCPLUS

DN 136:325238

ED Entered STN: 26 Apr 2002

TI Continuous cyanoalkylation process for the conversion of ammonia and primary amines with carbonyl compounds and hydrogen cyanide

IN Greindl, Thomas; Braun, Gerold; Wirsing, Friedrich; Krug, Georg

PA Basf Aktiengesellschaft, Germany

SO Eur. Pat. Appl., 13 pp.

CODEN: EPXXDW

DT Patent

LA German

IC ICM C07C253-00

CC 23-19 (Aliphatic Compounds)

Section cross-reference(s): 45

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1199302	A2	20020424	EP 2001-124231	20011015
	EP 1199302	A3	20030108		
	EP 1199302	B1	20040901		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	DE 10051196	A1	20020508	DE 2000-10051196	20001016
	US 2002087024	A1	20020704	US 2001-970937	20011005
	US 2003114700	A1	20030619	US 2002-236904	20020909
	US 6861548	B2	20050301		
PRAI	DE 2000-10051196	A	20001016		
	US 2001-970937	B1	20011005		

CLASS

PATENT NO. CLASS PATENT FAMILY CLASSIFICATION CODES

EP 1199302 ICM C07C253-00

EP 1199302 ECLA C07C253/00
 DE 10051196 ECLA C07C253/00
 US 2002087024 ECLA C07C253/00
 US 2003114700 ECLA C07C253/00
 OS CASREACT 136:325238; MARPAT 136:325238

AB Ammonia or organic compds. having .gtoreq.1 NH function are subjected to a cyanoalkylation by the reaction of the NH group-containing compound with a carbonyl compound (e.g.. formaldehyde) and with a mole per unreacted NH function of HCN in 2 steps to produce cyanoalkylated amines [e.g.. bis(cyanomethyl)amine]. In the first step, the reaction is conducted at less than 1/2 of the reaction mixture b.p. up to a conversion of .gtoreq.60%; and in the second step the reaction is conducted at under half of 150.degree. to .gtoreq.90% conversion (based on HCN).

ST cyanoalkylation amine prepn cyanoalkylamine: biscyanomethylamine prepn cyanomethylation ammonia

IT Aldehydes, reactions
 Amines, reactions
 Carbonyl compounds (organic), reactions
 Ketones, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (continuous cyanoalkylation process for the conversion of ammonia and primary amines)

IT Amides, preparation
 Carboxylic acids, preparation
 RL: PNU (Preparation, unclassified); PREP (Preparation)
 (continuous cyanoalkylation process for the conversion of ammonia and primary amines in the preparation of)

IT Hydrolysis
 Saponification
 (continuous cyanoalkylation process for the conversion of ammonia and primary amines with intermediate subjected to)

IT Alkylation
 (cyanoalkylation; continuous cyanoalkylation process for the conversion of ammonia and primary amines)

IT Methylation
 (cyanomethylation; continuous cyanoalkylation process for the conversion of ammonia and primary amines)

IT Amines, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (primary; continuous cyanoalkylation process for the conversion of ammonia and primary amines)

IT 420-04-2P, Cyanoamine
 RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)
 (continuous cyanoalkylation process for the conversion of ammonia and primary amines for preparation of)

IT 124-09-4, Hexamethylene diamine, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (continuous cyanoalkylation process for the conversion of ammonia and primary amines with carbonyl compds. and hydrogen cyanide)

IT 50-00-0, Formaldehyde, reactions 74-89-5, Methylamine, reactions
 74-90-8, Hydrogen cyanide, reactions 75-07-0, Acetaldehyde, reactions
 123-38-6, Propionaldehyde, reactions 7664-41-7, Ammonia, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (continuous cyanoalkylation process for the conversion of ammonia and primary amines with carbonyl compds. and hydrogen cyanide)

IT 628-87-5P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (continuous cyanoalkylation process for the conversion of ammonia and primary amines with carbonyl compds. and hydrogen cyanide)

IT 5616-32-0P 7327-60-8P 185257-07-2P
 RL: SPN (Synthetic preparation); PREP (Preparation)

(continuous cyanoalkylation process for the conversion of ammonia and primary amines with carbonyl compds. and hydrogen cyanide)

L28 ANSWER 6 OF 6 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 1995:761802 HCAPLUS
 DN 123:144506
 ED Entered STN: 29 Aug 1995
 TI Reductive amination process and ruthenium catalysts for the preparation of aminoalcohols from hydroxycarbonyl compounds
 IN Weyer, Hans-Juergen; Mercker, Hans Jochen; Becker, Rainer
 PA BASF A.-G., Germany
 SO Ger. Offen., 5 pp.
 CODEN: GWXXBX
 DT Patent
 LA German
 IC ICM C07C217-04
 ICS C07C217-28; C07C215-10; C07C213-02
 ICA B01J023-46; C07C047-19; C07C049-17; C07D325-00; C07H003-00
 CC 33-7 (Carbohydrates)
 Section cross-reference(s): 23, 67

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 4400591	A1	19950713	DE 1994-4400591	19940112
	EP 663389	A1	19950719	EP 1994-120495	19941223
	R: BE, DE, FR, GB				
PRAI	DE 1994-4400591	A	19940112		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
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DE 4400591	ICM	C07C217-04
	ICS	C07C217-28; C07C215-10; C07C213-02
	ICA	B01J023-46; C07C047-19; C07C049-17; C07D325-00; C07H003-00
EP 663389	ECLA	B01J023/46B; C07C213/02

OS CASREACT 123:144506; MARPAT 123:144506

AB Aminoalcs. (e.g., N-methylglucamine: 96% yield) are prepared in high yield by the reductive amination of a hydroxycarbonyl compound (e.g., glucose) with a primary (e.g., H₂NMe) or secondary amine or NH₃ with H₂ at 0-300.degree./1-400 bar in the presence of a catalyst containing 50-100% of its mass in the form of Ru (e.g., Ru/C).

ST methylglucamine; glucose reductive amination prep methylglucamine; hydroxycarbonyl compd reductive amination prep aminoalc; catalyst reductive amination ruthenium prep aminoalc

IT Carbohydrates and Sugars, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)
 (glycoaldehydes; reductive amination into aminoalcs. in presence of Ru catalysts)

IT Charcoal

RL: CAT (Catalyst use); USES (Uses)
 (reductive amination catalysts for conversion of hydroxycarbonyl compds. into aminoalcs.)

IT Monosaccharides

RL: RCT (Reactant); RACT (Reactant or reagent)
 (reductive amination into aminoalcs. in presence of Ru catalysts)

IT Amines, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)
 (reductive amination of hydroxycarbonyl compds. with)

IT Alcohols, preparation

RL: SPN (Synthetic preparation); PREP (Preparation)
 (amino, reductive amination process and ruthenium catalysts for the preparation from hydroxycarbonyl compds. of)

IT Oligosaccharides

RL: RCT (Reactant); RACT (Reactant or reagent)

(di-, reductive amination into aminoalcs. in presence of Ru catalysts)

IT **Carbonyl compounds, reactions**
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (hydroxy, reductive amination into aminoalcs. in presence of Ru catalysts)

IT **Amination**
 (reductive, of hydroxycarbonyl compds. into aminoalcs.)

IT **Amination catalysts**
 (reductive, ruthenium for conversion of hydroxycarbonyl compds. into aminoalcs.)

IT **Amines, reactions**
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (secondary, reductive amination of hydroxycarbonyl compds. with)

IT 1314-23-4. Zirconia, uses 1344-28-1. Alumina, uses 7440-18-8.
 Ruthenium, uses 12036-10-1. Ruthenium dioxide
 RL: CAT (Catalyst use): USES (Uses)
 (reductive amination catalysts for conversion of hydroxycarbonyl compds. into aminoalcs.)

IT 50-99-7. Glucose, reactions 5077-67-8. 1-Hydroxy-2-butanone 9005-25-8.
 Starch, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reductive amination into aminoalcs. in presence of Ru catalysts)

IT 74-89-5. Methylamine, reactions 124-40-3. Dimethylamine, reactions 7664-41-7. Ammonia, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reductive amination of hydroxycarbonyl compds. with)

IT 50-70-4P. Sorbitol, preparation
 RL: BYP (Byproduct); PREP (Preparation)
 (reductive amination process and ruthenium catalysts for the preparation from hydroxycarbonyl compds. of)

IT 6284-40-8P. N-Methylglucamine 76326-99-3P. N,N-Dimethylglucamine
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (reductive amination process and ruthenium catalysts for the preparation from hydroxycarbonyl compds. of)

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FOR DETAILS. <<<

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L45 ANSWER 1 OF 2 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
 AN 2004-224436 [21] WPIX
 CR 2004-167955 [16]
 DNC C2004-088594
 TI Production of secondary amine product comprises heating mixture comprising hydrogen, carbonyl compound and primary amine reactant in presence of catalyst comprising metallic palladium.
 DC A25 E19 J04
 IN NELLI, C H; SU, W
 PA (HUNT-N) HUNTSMAN PETROCHEMICAL CORP
 CYC 1
 PI US 2004019238 A1 20040129 (200421)* 7 C07C002-00
 ADT US 2004019238 A1 CIP of US 2002-200361 20020722, US 2003-623293 20030718
 PRAI US 2003-623293 20030718; US 2002-200361 20020722
 IC ICM C07C002-00
 AB US2004019238 A UPAB: 20040326
 NOVELTY - Producing a secondary amine product comprises heating a mixture comprising hydrogen, a carbonyl compound and a primary amine reactant to 80-230 deg. C and under 100-3000 psig in the presence of a catalyst comprising metallic palladium.

DETAILED DESCRIPTION - Producing a secondary amine product comprises heating a mixture comprising hydrogen, a carbonyl compound of formula R'-C(=O)-R and a primary amine reactant of formula R-NH₂ to 80-230 deg. C and under 100-3000 psig in the presence of a catalyst comprising metallic palladium. The secondary amine has the formula RNH-CH(R')(R).

R = alkyl, aminoalkyl, alkylaryl, or aminoalkyl;
 R', R = H or 1-20C alkyl, provided that both R' and R are not simultaneously H.

The amount of tertiary amine produced during the process is less than 3.00 weight% of the total amount of secondary amine produced.

An INDEPENDENT CLAIM is also included for a process for producing a secondary amine product from a primary amine reactant.

USE - For producing a secondary amine product, preferably N,N'-diisopropylsophorone diamine (claimed) that may be used as catalysts for the production of polyurethanes and polyureas.

ADVANTAGE - The process of the invention has high conversion rates and high selectivities, both greater than 95% on a first pass through the reactor.

Dwg.0/0

FS CPI
 FA AB; DCN
 MC CPI: A02-A10; E10-B01E; E10-B04C2; E11-F07A; J04-E04; N02-F01; N07-D08A

L45 ANSWER 2 OF 2 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
 AN 2004-167955 [16] WPIX
 CR 2004-224436 [21]
 DNC C2004-066624
 TI Production of secondary amine, e.g. 2-alkyl substituted amine, involves reacting mixture of hydrogen, primary amine, and carbonyl compound using palladium catalyst.
 DC E19 J04
 IN NELLI, C H; SU, W
 PA (HUNT-N) HUNTSMAN PETROCHEMICAL CORP
 CYC 103
 PI US 2004015016 A1 20040122 (200416)* 4 C07C002-00
 WO 2004009529 A1 20040129 (200416) EN C07C209-26
 RW: AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS
 LU MC MW MZ NL OA PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW
 W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK
 DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR

KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NI NO NZ OM PH PL
 PT RO RU SC SD SE SG SK SL TJ TM TN TR TT TZ UA UG UZ VC VN YU ZA
 ZM ZW

AU 2003249326 A1 20040209 (200450) C07C209-26
 ADT US 2004015016 A1 US 2002-200361 20020722; WO 2004009529 A1 WO 2003-US22666
 20030721; AU 2003249326 A1 AU 2003-249326 20030721
 FDT AU 2003249326 A1 Based on WO 2004009529
 PRAI US 2002-200361 20020722
 IC ICM C07C002-00; C07C209-26
 AB US2004015016 A UPAB: 20040805

NOVELTY - A secondary amine is produced from a primary amine by reacting a mixture comprising hydrogen, primary amine, and carbonyl compound, under 100-3000 psig at 80-200 deg. C in the presence of a catalyst comprising metallic palladium and having a surface area of at least 50 m²/g. The amount of tertiary amine impurity produced during the process is less than 3 weight%.

DETAILED DESCRIPTION - A secondary amine is produced from a primary amine according to reaction scheme (I). The process comprises reacting a mixture comprising hydrogen, primary amine, and carbonyl compound, under 100-3000 psig at 80-200 deg. C in the presence of a catalyst comprising metallic palladium and having a surface area of at least 50 m²/g. The amount of tertiary amine impurity produced during the process is less than 3 weight%.

R = alkyl or alkylaryl;

R', R'' = H or 1-20C alkyl.

R' and R'' are not simultaneously hydrogen, where tertiary amine by-product is minimized.

USE - For preparing 2-alkyl substituted amines from primary amines.

ADVANTAGE - The method selectively produces secondary amines in high yield.

Dwg.0/0

FS CPI

FA AB; GI; DCN

MC CPI: E10-B01A; E10-B01E; E10-B04A1; E10-B04C2; J04-E01

=> d a11 146 tot

L46 ANSWER 1 OF 5 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN

AN 2003-150914 [15] WPIX

DNC C2003-039291

TI Manufacture of catalyst for hydrogenation of hydrocarbon oil, involves impregnating solution containing VI group metallic salt on oxide carrier and impregnating solution containing VIII group metallic salt on carrier.

DC A97 E19 H04

PA (MAZN) COSMO OIL CO LTD

CYC 1

PI JP 2002239385 A 20020827 (200315)* 9 B01J023-88

ADT JP 2002239385 A JP 2001-37927 20010215 ;

PRAI JP 2001-37927 20010215

IC ICM B01J023-88

ICS B01J029-16; B01J037-02; C10G045-08

AB JP2002239385 A UPAB: 20030303

NOVELTY - A solution containing a VI group metallic salt is impregnated on a complex oxide carrier comprising alumina, and zeolite, boria, silica and/or zirconia, and dried. A solution containing a VIII group metallic salt and an organic compound having hydroxyl group, ether bond, carboxyl group and/or amino group, is impregnated on the carrier and dried. Hydrocarbon oil desulfurization catalyst is obtained.

DETAILED DESCRIPTION - A solution containing a VI group metallic salt (10-30 weight% (weight%) based on catalyst reference standard and conversion) is impregnated on a complex oxide carrier containing alumina (80-99.5 mass%) and zeolite, boria, silica and/or zirconia (0.5-20 mass%), and dried. A solution containing a VIII group metallic salt (1-15 weight% based

on catalyst reference standard and conversion) and an organic compound having hydroxyl group, ether bond, carboxyl group and/or amino group, is impregnated on the carrier and dried. Hydrocarbon oil desulfurization catalyst is obtained.

An INDEPENDENT CLAIM is included for hydrogenation of hydrocarbon oil which involves hydrogenating light-oil fraction containing sulfur at hydrogen partial pressure of 3-8 MPa, at a temperature of 300-420 deg. C and liquid-space velocity of 0.3-5 hour⁻¹ in presence of the catalyst.

USE - Used in hydrogenation of hydrocarbon oil (claimed).

ADVANTAGE - Since the catalyst has high desulfurization activity, the catalyst effectively reduces the sulfur content in the light oil. The hydrogenation of the light oil is performed without reconstructing the existing device used for carrying out the hydrogenation. By using the catalyst, the light oil with low sulfur content is obtained easily.

Dwg.0/0

FS CPI
 FA AB; DCN
 MC CPI: A12-W11K; E05-L; E05-L02B; E05-L02C; E05-M; E05-N; E10-B01B;
 E10-B02B; E10-B04; E10-C02; E10-C04; E10-E04H; E10-E04J; E10-E04M;
 E10-H01; E11-D; E35; E35-Q; E35-V; E35-W; H04-E08
 ; H04-F02E; N02; N02-B; N02-C; N03; N03-C01; N03-C02;
 N03-D02; N05-D; N05-E; N06-E01; N07-B

L46 ANSWER 2 OF 5 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
 AN 2002-667125 [71] WPIX

DNC C2002-187424

TI Hydroformylation of olefins, to aldehyde mixtures used for producing carboxylic acids, alcohols, amines or aldol condensation products, comprises 4,5-bis-(10-phenoxa-phosphino)-xanthene as ligand in second stage.

DC E19 H04 J04

IN BOHNEN, H; HERWIG, J

PA (CELA) CELANESE CHEM EURO GMBH

CYC 22

PI WO 2002068371 A1 20020906 (200271)* GE 44 C07C045-50 <--
 RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
 W: JP US ZA

DE 10108475 A1 20020912 (200271) C07C045-50 <--

ADT WO 2002068371 A1 WO 2002-EP1379 20020209: DE 10108475 A1 DE 2001-10108475
 20010222

PRAI DE 2001-10108475 20010222

IC ICM C07C045-50

ICS B01J031-24; C07C029-14; C07C031-125; C07C047-02;
 C07C051-235; C07C053-126; C07C067-08; C07C069-80; C07C209-24;
 C07F015-00

AB WO 200268371 A UPAB: 20021105

NOVELTY - In hydroformylation of olefinically unsaturated compounds (I), in which tail gas (II) is formed in a first reaction stage in a homogeneous system using organic phosphorus(III)-rhodium (Rh) complex compounds as catalyst. (II) is passed to second reaction stage, in which it is reacted with (I) in presence of Rh complex compounds and diphosphines of the 4,5-bis-(10-phenoxa-phosphino)-xanthene type.

DETAILED DESCRIPTION - In hydroformylation of olefinically unsaturated compounds (I), a first reaction stage is carried out in a homogeneous system using organic phosphorus (P-III) rhodium (Rh) complex compounds as catalyst at 0.2-20.0 MPa and tail gas (II) is formed.

(II) is passed to a second reaction stage, in which the (I) present in (II) are reacted at 0.2-20 MPa in a homogeneous reaction system in the presence of Rh complex compounds and diphosphines of formula (III).

R1, R2 = 1-18C alkyl, 6-14 C aryl, 7-24 C aralkyl or 7-24 C alkylaryl;

R3 = H or -CHRaRb;

Ra, Rb = H, 1-18 C alkyl, 1-8 C alkoxy or 6-14 C aryl or 7-24 C

aralkyl groups, optionally substituted by 1-10 C alkyl and/or 1-10 C alkoxy; and

R4 = 1-10 C alkyl, 6-14 C aryl, 7-24 C aralkyl or 7-24 C alkylaryl.

USE - The aldehyde mixtures obtained by hydroformylation, after separation and purification, are used for producing the following:

(1) carboxylic acids by oxidation;

(2) alcohols by reduction or hydrogenation;

(3) amines by amination with ammonia or a primary or secondary amine in the presence of an amination catalyst and hydrogen; and

(4) aldehydes from hydroformylation of mixtures containing but-1-ene and but-2-ene, after aldol condensation to aldol mixtures, are used for producing the following:

(i) mixtures of isomeric decyl alcohols by hydrogenation;

(ii) didecyl phthalate by reacting the decyl alcohols with phthalic acid or anhydride; and

(iii) isomeric decancarboxylic acids by partial hydrogenation to isomeric decanals, then oxidation (all claimed).

ADVANTAGE - In hydroformylation of mixtures, ligands giving high conversion of internal olefins with high selectivity to the preferred linear aldehydes are used in stage (2). However, the diphosphites normally used are sensitive to hydrolysis and form phosphonic acids that can damage the rhodium complex catalyst. Diphosphines (III), which are very stable, give high selectivity to linear carbonyl compounds under economically-acceptable process conditions and extend the catalyst life.

Dwg.0/0

FS CPI

FA AB; GI; DCN

MC CPI: E05-G01; E10-B04C; E10-C04K; E10-D01C; E10-E04E; E11-F02; H04-E; H04-F01; H04-F02E; J04-E04; N02-E02; N05-D; N05-E01; N07-D02A

L46 ANSWER 3 OF 5 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
AN 2002-643569 [69] WPIX

DNC C2002-181888

TI Hydroformylation of olefin to give aldehyde and derivatives, e.g. decyl alcohols from butene mixtures involves reaction with carbon monoxide and hydrogen in presence of special rhodium-diphosphine complex.

DC E19 H04 J04

IN BOHNEN, H; HERWIG, J

PA (CELA) CELANESE CHEM EURO GMBH

CYC 22

PI WO 2002068369 A1 20020906 (200269)* GE 34 C07C045-50 <--
RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
W: JP US ZA

DE 10108476 A1 20020912 (200269) C07C045-50 <--

ADT WO 2002068369 A1 WO 2002-EP1377 20020209; DE 10108476 A1 DE 2001-10108476
20010222

PRAI DE 2001-10108476 20010222

IC ICM C07C045-50

ICS B01J031-24; C07C029-14; C07C031-125; C07C047-02;
C07C051-235; C07C053-126; C07C067-08; C07C069-80; C07F015-00

AB WO 2002068369 A UPAB: 20021026

NOVELTY - 9,9-Di-substituted 4,5-bis-(10-phenoxaphosphino)-xanthene compounds (I) are used as diphosphine ligands for rhodium complexes used as catalysts in the hydroformylation of olefins at 50-160 deg. C and 0.2-20 MPa.

DETAILED DESCRIPTION - A method for the hydroformylation of olefinically unsaturated compounds with carbon monoxide and hydrogen at 50-160 deg. C and 0.2-20 MPa in presence of complexes of rhodium and diphosphine compounds of formula (I).

R1, R2 = 1-18C alkyl, 6-14C aryl, 7-24C aralkyl or 7-24C alkaryl;

R3 = H or -C(Ra)HRb;

Ra, Rb = H, 1-18C alkyl or alkoxy, 6-14C aryl (optionally substituted with 1-10C alkyl or alkoxy) or 7-24C aralkyl;

R4 = 1-10C alkyl, 6-14C aryl, 7-24C aralkyl or 7-24C alkaryl.

INDEPENDENT CLAIMS are also included for:

(a) methods for the production of carboxylic acids, alcohols or amines by hydroformylation of olefins to aldehydes followed by oxidation to acid, reduction or hydrogenation to alcohol, or amination with ammonia, prim. or sec. amine in presence of hydrogen and a catalyst;

(b) a method for the production of mixtures of isomeric decyl alcohols from mixtures containing butene-1 and butene-2, by hydroformylation as above followed by condensation of the resulting aldehyde mixture, separation of the aldol mixture and hydrogenation to the alcohols;

(c) a method for the production of didecyl phthalate by process (b) followed by esterification of the decyl alcohol mixture with phthalic acid or anhydride;

(d) a method for the production of mixtures of isomeric decanoic acids from the aldol mixture produced in (b), by partial hydrogenation to isomeric decanals followed by oxidation to the acids; and

(e) hydroformylation catalysts containing rhodium and (I).

USE - For the hydroformylation of olefins to aldehydes, followed by conversion into alcohols, carboxylic acids, esters and amines, especially e.g. decyl alcohols, decanoic acids and didecyl phthalate plasticizers.

ADVANTAGE - Enables the hydroformylation of olefins under economically viable conditions to give linear aldehydes with high levels of conversion and high selectivity, even when using olefins with internal double bonds. The method uses soluble diphosphine catalysts which show a long service life without significant loss of activity over many cycles.

Dwg.0/0

FS CPI

FA AB; GI; DCN

MC CPI: E05-G01; E06-A03; E10-B04C; E10-C04K; E10-D01C; E10-E04E; E10-G02A1; E11-F02; H04-A07; H04-F02A; J04-E04; N02-E02; N05-D; N05-E01; N07-D02A

L46 ANSWER 4 OF 5 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN

AN 1990-231149 [30] WPIX

DNC C1990-099763

TI New beryllium, aluminium, phosphorus oxide molecular sieves - have three-dimensional microporous framework structures with tetrahedral oxide units.

DC E12 H04 J01 J04

IN FLANIGEN, E M; LOK, B M; PATTON, R L; WILSON, S T

PA (UNIV) UOP

CYC 1

PI US 4940570 A 19900710 (199030)*

ADT US 4940570 A US 1986-835293 19860303

PRAI US 1984-599776 19840413; US 1986-835293 19860303

IC C01B025-36

AB US 4940570 A UPAB: 19930928

Sieves (I) have framework structures of BeO₂, Al₂O₃ and P₂O₅ tetrahedral units and have compsn. (anhydrous basis) mR₂(Be(x)Al(y)P(z))O₂ where R is an organic template, m its number of moles present and is 0-0.3; x, y, z are the mole fractions of Be, Al, P present as tetrahedral oxides and their values are defined by a ternary diagram. Sieves may be obtnd. hydrothermally from gels of reactive sources of Be, Al and P plus a template. Suitable sources are e.g. oxides, hydroxides, halogens and/or sulphates of Be, Al isopropoxide and orthophosphoric acid. Template is pref. a quaternary ammonium or phosphonium cpd. Prods. have characteristic XRD patterns.

USE/ADVANTAGE - (I) are H₂O sorbents and desiccants leading to their use in drying natural or cracked gas, reformer H₂ streams, O₂ or N₂ streams etc. (I) are also catalysts for hydrocarbon conversion reactions e.g. cracking, isomerisation, hydrogenation, hydrofining etc. and oxidative combustion reaction. @

3

FS CPI
 FA AB
 MC CPI: E10-J02D; E11-D; E11-E; E11-G; E11-J; E11-Q02; E31-A02;
 E31-D01; E31-H03; E31-K01; E31-K07; H02-B01;
 H04-F02; J01-D01; J01-E03C; J04-E04; N01; N04-B; N06-B; N06-E

L46 ANSWER 5 OF 5 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN

AN 1988-112453 [16] WPIX

DNC C1988-050407

TI Crystalline gallium aluminophospho-silicate - for molecular sieves.
 useful as adsorbents and catalysts.

DC E32 H04 J01 J04

IN FLANIGEN, E M; LOK, B M T; PATTON, R L; WILSON, S T

PA (UNIC) UNION CARBIDE CORP

CYC 1

PI US 4735806 A 19880405 (198816)* 31

ADT US 4735806 A US 1986-845985 19860331

PRAI US 1984-599925 19840413; US 1986-845985 19860331

IC B01J027-18; C01B025-26

AB US 4735806 A UPAB: 19930923

Crystalline Ga aluminophosphosilicates of formula
 $mR:(Ga(w)Al(x)P(y)Si(z))O(2)$ (I) is new. (where R = at least one organic
 templating agent; m = 0-0.3; w,x,y and z are mole fractions falling within
 the pentagonal area defined by the following points in the ternary
 diagram: (A) x = 0.60, y = 0.38, z+w = 0.02; (B) x = 0.38, y = 0.60, z+w =
 0.02; (C) x = 0.01, y = 0.60, z+w = 0.39; (D) x = 0.01, y = 0.01, z+w =
 0.98; (E) x = 0.60, y = 0.01, z+w = 0.39).

USE - (I) are molecular sieves useful as (a) adsorbents, e.g. for
 drying natural gas, cracked gas, H₂, O₂, N₂ or air, and (b)
 catalyst, or catalyst bases, e.g. for combustion or hydrocarbon
 conversions e.g. cracking, hydrocracking, isomerisation, reforming,
 hydrotreating, alkylation, dealkylation, polymerisation, hydrogenation or
 dehydrogenation.

0/3

FS CPI

FA AB; DCN

MC CPI: E11-D; E11-E; E11-G; E11-H; E11-J; E11-Q01; E31-A02;
 E31-D01; E31-H03; H01-F01; H02-B01;
 H04-F02; J01-E03C; J04-E04; N06-A

=> b home

FILE 'HOME' ENTERED AT 15:07:38 ON 11 MAR 2005

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=> d his

(FILE 'HOME' ENTERED AT 13:13:19 ON 11 MAR 2005)

FILE 'HCAPLUS' ENTERED AT 13:13:23 ON 11 MAR 2005
L1 2 (US20040019238 OR US US20040015016)/PN

FILE 'REGISTRY' ENTERED AT 13:14:14 ON 11 MAR 2005

FILE 'HCAPLUS' ENTERED AT 13:14:16 ON 11 MAR 2005
L2 TRA L1 1- RN : 16 TERMS

FILE 'REGISTRY' ENTERED AT 13:14:16 ON 11 MAR 2005
L3 16 SEA L2

FILE 'WPIX' ENTERED AT 13:14:18 ON 11 MAR 2005
L4 1 (US20040019238 OR US US20040015016)/PN

=> b hcap

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FILE LAST UPDATED: 10 Mar 2005 (20050310/ED)

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=> d all 11 tot

L1 ANSWER 1 OF 2 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2004:80390 HCAPLUS
DN 140:130121
ED Entered STN: 01 Feb 2004
TI Preparation of secondary amines by the catalytic reductive alkylation of carbonyl compounds with primary amines
IN Su, Wei-yang; Nelli, Christopher H.
PA Huntsman Petrochemical Corporation, USA
SO U.S. Pat. Appl. Publ., 7 pp., Cont.-in-part of U.S. Ser. No. 200,361.
CODEN: USXXCO
DT Patent
LA English
IC ICM C07C029-26
NCL 564472000; 564473000
CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
Section cross-reference(s): 23, 67
FAN.CNT 2
PATENT NO. KIND DATE APPLICATION NO. DATE

PI US 2004019238 A1 20040129 US 2003-623293 20030718 <--

US 2004015016	A1	20040122	US 2002-200361	20020722
PRAI US 2002-200361	A2	20020722		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
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US 2004019238	ICM	C07C029-26
	NCL	564472000; 564473000

OS CASREACT 140:130121; MARPAT 140:130121

AB A process for the reductive alkylation of primary amines [e.g.. 1-amino-3-(dimethylamino)propane] to form secondary amines [e.g.. 1-(isopropylamino)-3-(dimethylamino)propane] is described using the high-pressure reaction of the primary amines with a carbonyl compound alkylating agent (e.g., acetone) and hydrogen in the presence of a catalyst which comprises metallic palladium (e.g., Pd/C).

ST secondary amine prepn catalytic reductive alkylation:
isopropylaminodimethylaminopropane prepn

IT Charcoal

RL: CAT (Catalyst use); USES (Uses)
(catalyst support; preparation of secondary amines by the catalytic reductive alkylation of carbonyl compds. with primary amines)

IT Amines, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)
(diamines: preparation of secondary amines by the catalytic reductive alkylation of carbonyl compds. with primary amines)

IT Carbonyl compounds (organic), reactions

Ketones, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of secondary amines by the catalytic reductive alkylation of carbonyl compds. with primary amines)

IT Amines, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)
(primary: preparation of secondary amines by the catalytic reductive alkylation of carbonyl compds. with primary amines)

IT Alkylation catalysts

(reductive: Pd in the preparation of secondary amines by the reductive alkylation of carbonyl compds. with primary amines)

IT Alkylation

(reductive: preparation of secondary amines by the catalytic reductive alkylation of carbonyl compds. with primary amines)

IT Amines, preparation

RL: IMF (Industrial manufacture); PREP (Preparation)
(secondary: preparation of secondary amines by the catalytic reductive alkylation of carbonyl compds. with primary amines)

IT 7440-44-0. Activated carbon, uses

RL: CAT (Catalyst use); USES (Uses)
(activated, catalyst support: preparation of secondary amines by the catalytic reductive alkylation of carbonyl compds. with primary amines)

IT 7440-05-3. Palladium, uses

RL: CAT (Catalyst use); USES (Uses)
(catalyst: preparation of secondary amines by the catalytic reductive alkylation of carbonyl compds. with primary amines)

IT 67-64-1DP. Acetone, reductive alkylation products with Jeffamines and

hydrogen 1333-74-0DP. Hydrogen, reductive alkylation products with Jeffamines and acetone 9046-10-0DP. Jeffamine D-230, reductive alkylation products with acetone and hydrogen 39423-51-3DP. Jeffamine T-403, reductive alkylation products with acetone and hydrogen

63905-13-5P 343595-80-2P

RL: IMF (Industrial manufacture); PREP (Preparation)
(preparation of secondary amines by the catalytic reductive alkylation of carbonyl compds. with primary amines)

IT 67-64-1. Acetone, reactions 78-93-3. MEK, reactions 107-87-9.

2-Pentanone 108-10-1. MIBK 109-55-7. 1-Amino-3-(dimethylamino)propane

110-12-3. Methylisoamyl ketone 123-05-7 591-78-6. 2-Hexanone

1333-74-0. Hydrogen, reactions 2855-13-2. Isophorone diamine

RL: RCT (Reactant); RACT (Reactant or reagent)
 (preparation of secondary amines by the catalytic reductive alkylation of carbonyl compds. with primary amines)

L1 ANSWER 2 OF 2 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 2004:60193 HCAPLUS
 DN 140:113242
 ED Entered STN: 26 Jan 2004
 TI Preparation of secondary amines via the catalytic alkylation of primary amines with carbonyl compounds
 IN Su, Wei-yaug; Nelli, Christopher H.
 PA Huntsman Petrochemical Corporation, USA
 SO U.S. Pat. Appl. Publ., 4 pp.
 CODEN: USXXCO
 DT Patent
 LA English
 IC ICM C07C029-26
 NCL 564446000; 564472000; 564473000
 CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
 Section cross-reference(s): 23, 48, 67

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2004015016	A1	20040122	US 2002-200361	20020722
	US 2004019238	A1	20040129	US 2003-623293	20030718 <--
	WO 2004009529	A1	20040129	WO 2003-US22666	20030721
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR; BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				

PRAI US 2002-200361 A2 20020722

CLASS

PATENT NO. CLASS PATENT FAMILY CLASSIFICATION CODES

US 2004015016	ICM	C07C029-26
	NCL	564446000; 564472000; 564473000
OS	CASREACT 140:113242; MARPAT 140:113242	
AB	A process for the reductive alkylation of primary amines (e.g., dimethylaminopropylamine) into secondary amines [e.g., 1-(dimethylamino)-3-(isopropylamino)propane] is described by the high-pressure reaction of the primary amine with an alkylating agent (e.g., a carbonyl compound such as acetone) and hydrogen in the presence of a catalyst which comprises metallic palladium.	
ST	dimethylaminopropylamine reductive alkylation acetone manuf dimethylaminoisopropylaminopropane	
IT	Amines, reactions RL: RCT (Reactant); RACT (Reactant or reagent) (diamines: preparation of secondary amines via the catalytic alkylation of primary amines with carbonyl compds.)	
IT	Carbonyl compounds (organic), reactions Ketones, reactions RL: RCT (Reactant); RACT (Reactant or reagent) (preparation of secondary amines via the catalytic alkylation of primary amines with carbonyl compds.)	
IT	Amines, reactions RL: RCT (Reactant); RACT (Reactant or reagent) (primary; preparation of secondary amines via the catalytic alkylation of primary amines with carbonyl compds.)	

- IT Alkylation catalysts
 - (reductive. Pd; preparation of secondary amines via the catalytic alkylation of primary amines with carbonyl compds. using)
- IT Alkylation
 - (reductive; preparation of secondary amines via the catalytic alkylation of primary amines with carbonyl compds. via)
- IT Charcoal
 - RL: CAT (Catalyst use); USES (Uses)
 - (support: preparation of secondary amines via the catalytic alkylation of primary amines with carbonyl compds. using)
- IT 7440-44-0. Activated carbon. uses
 - RL: CAT (Catalyst use); USES (Uses)
 - (activated. support; preparation of secondary amines via the catalytic alkylation of primary amines with carbonyl compds. using)
- IT 63905-13-5P 343595-80-2P
 - RL: IMF (Industrial manufacture); PREP (Preparation)
 - (preparation of secondary amines via the catalytic alkylation of primary amines with carbonyl compds.)
- IT 109-55-7, 1-Amino-3-(dimethylamino)propane 2855-13-2. Isophoronediamine
 - RL: RCT (Reactant); RACT (Reactant or reagent)
 - (preparation of secondary amines via the catalytic alkylation of primary amines with carbonyl compds.)
- IT 7440-05-3. Palladium. uses
 - RL: CAT (Catalyst use); USES (Uses)
 - (preparation of secondary amines via the catalytic alkylation of primary amines with carbonyl compds. using)
- IT 67-64-1. Acetone, reactions 78-93-3. MEK, reactions 107-87-9, 2-Pentanone 108-10-1. MIBK 110-12-3. Methyl isoamyl ketone 123-05-7 591-78-6, 2-Hexanone
 - RL: RCT (Reactant); RACT (Reactant or reagent)
 - (preparation of secondary amines via the catalytic alkylation of primary amines with carbonyl compds. using)
- IT 1333-74-0. Hydrogen, reactions
 - RL: RCT (Reactant); RGT (Reagent); RACT (Reactant or reagent)
 - (preparation of secondary amines via the catalytic alkylation of primary amines with carbonyl compds. using)

=> b reg

FILE 'REGISTRY' ENTERED AT 13:15:02 ON 11 MAR 2005
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STRUCTURE FILE UPDATES: 9 MAR 2005 HIGHEST RN 844817-50-1
DICTIONARY FILE UPDATES: 9 MAR 2005 HIGHEST RN 844817-50-1

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 18, 2005

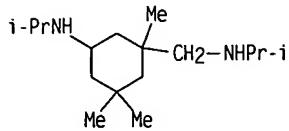
Please note that search-term pricing does apply when
conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more
information enter HELP PROP at an arrow prompt in the file or refer
to the file summary sheet on the web at:
<http://www.cas.org/ONLINE/DBSS/registryss.html>

=> d ide 13 tot

L3 ANSWER 1 OF 16 REGISTRY COPYRIGHT 2005 ACS on STN
 RN 343595-80-2 REGISTRY
 CN Cyclohexanemethanamine, 1,3,3-trimethyl-N-(1-methylethyl)-5-[(1-methylethyl)amino]- (9CI) (CA INDEX NAME)
 OTHER NAMES:
 CN Jefflink 754
 FS 3D CONCORD
 MF C16 H34 N2
 CI COM
 SR Reaction Database
 LC STN Files: CA, CAPLUS, CASREACT, USPATFULL
 DT.CA Cplus document type: Patent
 RL.P Roles from patents: PREP (Preparation); USES (Uses)
 RLD.P Roles for non-specific derivatives from patents: PREP (Preparation); PRP (Properties); USES (Uses)



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

16 REFERENCES IN FILE CA (1907 TO DATE)
 4 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 16 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 2 OF 16 REGISTRY COPYRIGHT 2005 ACS on STN
 RN 63905-13-5 REGISTRY
 CN 1,3-Propanediamine, N,N-dimethyl-N'-(1-methylethyl)- (9CI) (CA INDEX NAME)
 OTHER NAMES:
 CN N'-Isopropyl-N,N-dimethyl-1,3-propanediamine
 FS 3D CONCORD
 MF C8 H20 N2
 LC STN Files: CA, CAPLUS, CASREACT, CHEMLIST, RTECS*, TOXCENTER, USPATFULL
 (*File contains numerically searchable property data)
 Other Sources: EINECS**
 (**Enter CHEMLIST File for up-to-date regulatory information)
 DT.CA Cplus document type: Patent
 RL.P Roles from patents: PREP (Preparation); RACT (Reactant or reagent)

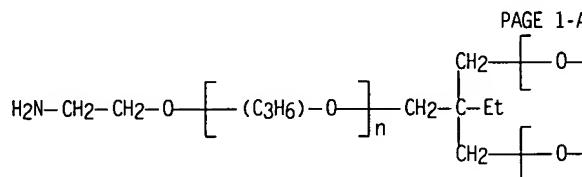
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PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

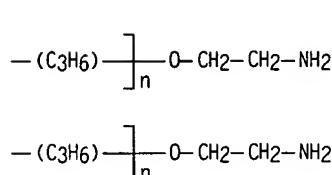
4 REFERENCES IN FILE CA (1907 TO DATE)
 4 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 3 OF 16 REGISTRY COPYRIGHT 2005 ACS on STN
 RN 39423-51-3 REGISTRY
 CN Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro-.omega.-(2-aminomethylethoxy)-, ether with 2-ethyl-2-(hydroxymethyl)-1,3-propanediol (3:1) (9CI) (CA INDEX NAME)
 OTHER NAMES:
 CN Huntsman T 403
 CN Jeffamine T 304

CN Jeffamine T 403
CN Jeffamine T 703
CN T 403
DR 168569-33-3, 58329-86-5, 125086-34-2, 98084-94-7, 155833-32-2, 87993-80-4
MF (C3 H6 O)n (C3 H6 O)n (C3 H6 O)n C15 H35 N3 O3
CI IDS, PMS, COM
PCT Polyether
LC STN Files: CA, CAPLUS, CHEMCATS, CHEMLIST, CIN, CSChem, IFICDB, IFIPAT, IFIUDB, MSDS-OHS, TOXCENTER, USPAT2, USPATFULL
Other Sources: DSL**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)
DT.CA Caplus document type: Conference; Journal; Patent; Report
RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)
RLD.P Roles for non-specific derivatives from patents: BIOL (Biological study); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)
RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); OCCU (Occurrence); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)
RLD.NP Roles for non-specific derivatives from non-patents: BIOL (Biological study); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)



3 (D1-Me)

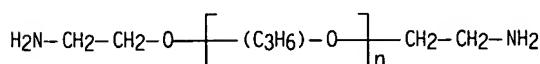


PAGE 1-B

316 REFERENCES IN FILE CA (1907 TO DATE)
125 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
316 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 4 OF 16 REGISTRY COPYRIGHT 2005 ACS on STN
RN 9046-10-0 REGISTRY
CN Poly[oxy(methyl-1,2-ethanediyl)]. .alpha.- (2-aminomethyl ethyl)- .omega.- (2-aminomethyl ethoxy)- (9CI) (CA INDEX NAME)
OTHER NAMES:
CN .alpha...omega.-Diaminopolypropylene glycol
CN Ablebond 342-1 Hardener
CN D 2000
CN D 230
CN D 400
CN DA 200
CN DA 200 (amine)

CN DA 500
 CN DA 500 (polyoxyalkylene)
 CN Diaminopolypropylene glycol
 CN Jeffamine 2000
 CN Jeffamine 400
 CN Jeffamine D 1000
 CN Jeffamine D 150
 CN Jeffamine D 200
 CN Jeffamine D 2000
 CN Jeffamine D 230
 CN Jeffamine D 300
 CN Jeffamine D 3000
 CN Jeffamine D 400
 CN Jeffamine D 4000
 CN Jeffamine D 500
 CN Jeffamine D 600
 CN Jeffamine D 800
 CN Jeffamine TA 345
 CN MG 420
 CN PC Amine DA 2000
 CN Poly(oxypropylene)diamine
 CN Poly(propylene oxide) bis(2-aminopropyl ether)
 CN Polypropylene glycol bis(aminopropyl) ether
 CN POPDA
 CN TS 64
 CN XNH 3351
 CN XTJ 510
 AR 26403-64-5, 26403-65-6
 DR 9057-16-3, 9064-12-4, 168569-34-4, 122896-82-6, 125956-81-2, 125956-82-3, 124364-29-0, 51160-96-4, 111775-27-0, 74434-34-7, 53124-95-1, 157766-64-8
 MF (C₃ H₆ O)_n C₆ H₁₆ N₂ O
 CI IDS, PMS, COM
 PCT Polyether
 LC STN Files: BIOBUSINESS, BIOSIS, CA, CAPLUS, CASREACT, CHEMCATS,
 CHEMLIST, CIN, CSCHEM, IFICDB, IFIPAT, IFIUDB, MSDS-OHS, PIRA, RTECS*,
 TOXCENTER, USPAT2, USPATFULL
 (*File contains numerically searchable property data)
 Other Sources: DSL**, TSCA**
 (**Enter CHEMLIST File for up-to-date regulatory information)
 DT.CA CApplus document type: Conference; Journal; Patent
 RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study);
 PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or
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 (Properties); RACT (Reactant or reagent); USES (Uses)
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 (Reactant or reagent); USES (Uses)
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 study); PREP (Preparation); PROC (Process); PRP (Properties); RACT
 (Reactant or reagent); USES (Uses)



2 (D1-Me)

1105 REFERENCES IN FILE CA (1907 TO DATE)

524 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
1106 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 5 OF 16 REGISTRY COPYRIGHT 2005 ACS on STN

RN 7440-44-0 REGISTRY

CN Carbon (7CI, 8CI, 9CI) (CA INDEX NAME)

OTHER NAMES:

CN 1262R97

CN 207A

CN 207A (carbon)

CN 207E3

CN 20SPD

CN 2C98

CN 3GX

CN 4GCX

CN 4GM

CN 606R97

CN AC 01

CN AC 01 (adsorbent)

CN AC 100

CN AC 100 (adsorbent)

CN AC 40

CN AC 40 (adsorbent)

CN Acticarbon 25K

CN Acticarbon ENO

CN Acticarbon TK

CN Actitex CS 1501

CN Activated carbon

CN Active carbon beads

CN AG 2

CN AG 2 (catalyst support)

CN AG 2-4

CN AG 3

CN AG 3 (adsorbent)

CN AG 5

CN AG 5 (adsorbent)

CN AG 95

CN AG 95 (carbon)

CN AG-M

CN AG-M (carbon)

CN AG-OV 1

CN AGN 1

CN AGN 1 (carbon)

CN AGN 2

CN AGN 2 (carbon)

CN AGN 3

CN AGS 3

CN AGS 4

CN AGS 4 (adsorbent)

CN AK

CN AK (adsorbent)

CN Amoco PX 21

CN Anthrasorb

CN APB 10C

CN AR 2

CN AR 2 (carbon)

CN AR 3

ADDITIONAL NAMES NOT AVAILABLE IN THIS FORMAT - Use FCN, FIDE, or ALL for

DISPLAY

DR 798556-12-4, 798556-14-6, 12789-22-9, 130960-03-1, 67167-41-3,

114680-00-1, 37196-29-5, 137322-21-5, 76416-61-0, 82600-58-6, 83138-28-7,

26837-67-2, 39422-04-3, 39434-34-9, 116788-82-0, 208519-32-8, 208728-20-5

MF C

CI COM

SR CA
 LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMLIST, CIN, CSCHEM, CSNB, DDFU, DETHERM*, DIOGENES, DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, HSDB*, IFICDB, IFIPAT, IFIUDB, IMSCOSEARCH, IPA, MEDLINE, MRCK*, MSDS-OHS, NIOSHTIC, PDLCOM*, PIRA, PRMT, RTECS*, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL, VTB
 (*File contains numerically searchable property data)
 Other Sources: DSL**, EINECS**, TSCA**
 (**Enter CHEMLIST File for up-to-date regulatory information)
 DT.CA Cplus document type: Book; Conference; Dissertation; Journal; Patent; Preprint; Report
 RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
 RLD.P Roles for non-specific derivatives from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)
 RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
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C

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

292983 REFERENCES IN FILE CA (1907 TO DATE)
 12925 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 293188 REFERENCES IN FILE CAPLUS (1907 TO DATE)
 18 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L3 ANSWER 6 OF 16 REGISTRY COPYRIGHT 2005 ACS on STN
 RN 7440-05-3 REGISTRY
 CN Palladium (8CI, 9CI) (CA INDEX NAME)
 OTHER NAMES:
 CN E 1010/W
 CN MPP 030
 CN MPP 050
 CN MPP 080
 CN P 50
 CN P 50 (metal)
 CN Palladex 600
 CN Palladium black
 CN Palladium element
 CN SFP 1001P
 MF Pd
 CI COM
 LC STN Files: AGRICOLA, ANABSTR, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CANCERLIT, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHEM, CSNB, DDFU, DETHERM*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA

MEDLINE, MRCK*, MSDS-OHS, NIOSHTIC, PIRA, PRMT, RTECS*, TOXCENTER,
TULSA, ULIDAT, USPAT2, USPATFULL, VTB

(*File contains numerically searchable property data)

Other Sources: DSL**, EINECS**, TSCA**

(**Enter CHEMLIST File for up-to-date regulatory information)

DT.CA Caplus document type: Book; Conference; Dissertation; Journal; Patent;
Preprint; Report

RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study);
CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC
(Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process);
PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role
in record)

RLD.P Roles for non-specific derivatives from patents: ANST (Analytical
study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC
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PRP (Properties); RACT (Reactant or reagent); USES (Uses)

RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological
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MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC
(Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses);
NORL (No role in record)

RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical
study); BIOL (Biological study); CMBI (Combinatorial study); FORM
(Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence);
PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or
reagent); USES (Uses)

Pd

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

85400 REFERENCES IN FILE CA (1907 TO DATE)

6217 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA

85450 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 7 OF 16 REGISTRY COPYRIGHT 2005 ACS on STN

RN 2855-13-2 REGISTRY

CN Cyclohexanemethanamine, 5-amino-1.3.3-trimethyl- (9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Cyclohexanemethylamine, 5-amino-1.3.3-trimethyl- (7CI, 8CI)

OTHER NAMES:

CN 1.3.3-Trimethyl-1-aminomethyl-5-aminocyclohexane

CN 1-Amino-3.3.5-trimethyl-5-aminomethylcyclohexane

CN 1-Amino-3-(aminomethyl)-3.5.5-trimethylcyclohexane

CN 3.3.5-Trimethyl-5-aminomethylcyclohexylamine

CN 3-Aminomethyl-3.5.5-trimethylcyclohexylamine

CN 5-Amino-1.3.3-trimethylcyclohexanemethanamine

CN 5-Amino-1.3.3-trimethylcyclohexanemethylamine

CN Araldite HY 5083

CN Chemammina CA 17

CN Epilox H 10-31

CN IPD

CN IPDA

CN Isophorone diamine

CN Luxam IPD

CN Polypox IPD

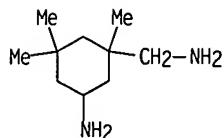
CN Rutadur SG

CN Vestamin IPD

FS 3D CONCORD

DR 177646-11-6, 129050-51-7, 25495-81-2, 50858-71-4, 52004-55-4, 45981-71-3,
52697-24-2, 116723-72-9

MF C10 H22 N2
 CI COM
 LC STN Files: ANABSTR, AQUIRE, BEILSTEIN*, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CAOLD, CAPLUS, CASREACT, CBNB, CHEMCATS, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, EMBASE, HSDB*, IFICDB, IFIPAT, IFIUDB, MEDLINE, MSDS-OHS, NIOSHTIC, PIRA, PROMT, RTECS*, TOXCENTER, UOLIDAT, USPAT2, USPATFULL
 (*File contains numerically searchable property data)
 Other Sources: DSL**, EINECS**, TSCA**
 (**Enter CHEMLIST File for up-to-date regulatory information)
 DT.CA CAplus document type: Conference; Journal; Patent; Report
 RL.P Roles from patents: BIOL (Biological study); FORM (Formation, nonpreparative); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
 RLD.P Roles for non-specific derivatives from patents: BIOL (Biological study); MSC (Miscellaneous); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)
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PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

1313 REFERENCES IN FILE CA (1907 TO DATE)
 681 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 1313 REFERENCES IN FILE CAPLUS (1907 TO DATE)
 8 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L3 ANSWER 8 OF 16 REGISTRY COPYRIGHT 2005 ACS on STN
 RN 1333-74-0 REGISTRY
 CN Hydrogen (8CI, 9CI) (CA INDEX NAME)
 OTHER NAMES:
 CN Dihydrogen
 CN Hydrogen (H2)
 CN Hydrogen molecule
 CN Mol. hydrogen
 CN Molecular hydrogen
 CN Orthohydrogen
 CN Parahydrogen
 CN Protium
 DR 725200-57-7
 MF H2
 CI COM
 LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, DDFU, DETHERM*, DIOGENES, DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, HSDB*, IFICDB, IFIPAT, IFIUDB, IMSCOSEARCH, IPA, MEDLINE, MRCK*, MSDS-OHS, NIOSHTIC, PDLCOM*, PIRA, PROMT, RTECS*, SPECINFO, TOXCENTER, TULSA, UOLIDAT, USPAT2, USPATFULL
 (*File contains numerically searchable property data)
 Other Sources: DSL**, EINECS**, TSCA**

(**Enter CHEMLIST File for up-to-date regulatory information)

DT.CA Cplus document type: Book; Conference; Dissertation; Journal; Patent; Preprint; Report

RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

RLD.P Roles for non-specific derivatives from patents: ANST (Analytical study); BIOL (Biological study); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

H-H

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

296023 REFERENCES IN FILE CA (1907 TO DATE)
 3624 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 296159 REFERENCES IN FILE CPLUS (1907 TO DATE)
 1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L3 ANSWER 9 OF 16 REGISTRY COPYRIGHT 2005 ACS on STN
 RN 591-78-6 REGISTRY
 CN 2-Hexanone (8CI, 9CI) (CA INDEX NAME)
 OTHER NAMES:
 CN 2-Oxohexane
 CN Butyl methyl ketone
 CN MBK
 CN Methyl butyl ketone
 CN Methyl n-butyl ketone
 CN n-Butyl methyl ketone
 FS 3D CONCORD
 MF C6 H12 O
 CI COM
 LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN*, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CANCERLIT, CAOLD, CPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHM, CSNB, DDFU, DETHERM*, DIPPR*, DRUGU, EMBASE, GMELIN*, HODOC*, HSDB*, IFICDB, IFIPAT, IFIUDB, MEDLINE, MRCK*, MSDS-OHS, NAPRALERT, NIOSHTIC, PDLCOM*, PIRA, PROMT, RTECS*, SPECINFO, SYNTHLINE, TOXCENTER, ULIDAT, USPAT2, USPATFULL, VTB
 (*File contains numerically searchable property data)

Other Sources: DSL**, EINECS**, TSCA**

(**Enter CHEMLIST File for up-to-date regulatory information)

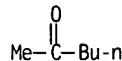
DT.CA Cplus document type: Conference; Dissertation; Journal; Patent; Preprint; Report

RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

RLD.P Roles for non-specific derivatives from patents: BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)

RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

RLD.NP Roles for non-specific derivatives from non-patents: BIOL (Biological study); FORM (Formation, nonpreparative); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

3477 REFERENCES IN FILE CA (1907 TO DATE)
 23 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 3480 REFERENCES IN FILE CAPLUS (1907 TO DATE)
 2 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L3 ANSWER 10 OF 16 REGISTRY COPYRIGHT 2005 ACS on STN

RN 123-05-7 REGISTRY

CN Hexanal, 2-ethyl- (6CI, 8CI, 9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Caproaldehyde, .alpha.-ethyl- (3CI)

OTHER NAMES:

CN (.-)-2-Ethylhexanal

CN .alpha.-Ethylcaproaldehyde

CN .alpha.-Ethylhexanal

CN 2-Ethylcaproaldehyde

CN 2-Ethylhexaldehyde

CN 2-Ethylhexanal

CN 2-Ethylhexylaldehyde

CN 3-Formylheptane

CN Butylethylacetaldehyde

CN Ethylbutylacetaldehyde

CN NSC 42871

FS 3D CONCORD

DR 58712-00-8

MF C8 H16 O

CI COM

LC STN Files: ANABSTR, BEILSTEIN*, BIOSIS, CA, CAOLD, CAPLUS, CASREACT, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE, CSCHEM, CSNB, DETHERM*, DIPPR*, EMBASE, GMELIN*, HODOC*, HSDB*, IFICDB, IFIPAT, IFIUDB, MEDLINE, MSDS-OHS, NIOSHTIC, RTECS*, SPECINFO, TOXCENTER, USPAT2, USPATFULL
 (*File contains numerically searchable property data)

Other Sources: DSL**, EINECS**, TSCA**

(**Enter CHEMLIST File for up-to-date regulatory information)

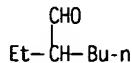
DT.CA CAplus document type: Conference; Journal; Patent; Report

RL.P Roles from patents: BIOL (Biological study); CMBI (Combinatorial study); MSC (Miscellaneous); PREP (Preparation); PROC (Process); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

RLD.P Roles for non-specific derivatives from patents: PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

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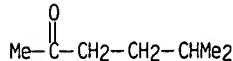


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

901 REFERENCES IN FILE CA (1907 TO DATE)
 46 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 901 REFERENCES IN FILE CAPLUS (1907 TO DATE)
 37 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L3 ANSWER 11 OF 16 REGISTRY COPYRIGHT 2005 ACS on STN
 RN 110-12-3 REGISTRY
 CN 2-Hexanone, 5-methyl- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)
 OTHER NAMES:
 CN 2-Methyl-5-hexanone
 CN 3-Methylbutyl methyl ketone
 CN 5-Methyl-2-hexanone
 CN Isoamyl methyl ketone
 CN Isopentyl methyl ketone
 CN Methyl isoamyl ketone
 CN Methyl isopentyl ketone
 CN MIAK
 FS 3D CONCORD
 MF C7 H14 O
 CI COM
 LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN*, BIOBUSINESS, BIOSIS,
 CA, CAOLD, CAPLUS, CASREACT, CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE,
 CIN, CSChem, CSNB, DETHERM*, DIPPR*, HODOC*, HSDB*, IFICDB, IFIPAT,
 IFIUDB, MEDLINE, MSDS-OHS, NIOSHTIC, PDLCOM*, PIRA, PROMT, RTECS*.
 SPECINFO, SYNTHLINE, TOXCENTER, ULIDAT, USPAT2, USPATFULL
 (*File contains numerically searchable property data)
 Other Sources: DSL**, EINECS**, TSCA**
 (**Enter CHEMLIST File for up-to-date regulatory information)

DT.CA Caplus document type: Conference; Journal; Patent; Report
 RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study);
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 (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in
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 (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT
 (Reactant or reagent); USES (Uses); NORL (No role in record)



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

657 REFERENCES IN FILE CA (1907 TO DATE)
 4 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 659 REFERENCES IN FILE CAPLUS (1907 TO DATE)
 14 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L3 ANSWER 12 OF 16 REGISTRY COPYRIGHT 2005 ACS on STN
 RN 109-55-7 REGISTRY
 CN 1,3-Propanediamine, N,N-dimethyl- (6CI, 8CI, 9CI) (CA INDEX NAME)

OTHER NAMES:

CN (3-Aminopropyl)dimethylamine
 CN (3-Dimethylaminopropan-1-yl)amine
 CN .gamma.-Dimethylaminopropylamine
 CN 1-(Dimethylamino)-3-aminopropane
 CN 1-Amino-3-(dimethylamino)propane
 CN 3-(Dimethylamino)-1-aminopropane
 CN 3-(Dimethylamino)-1-propylamine
 CN 3-(Dimethylamino)propanamine
 CN 3-(Dimethylamino)propylamine
 CN 3-Amino-1-(dimethylamino)propane
 CN 3-N,N-Dimethylaminopropylamine
 CN N,N-Dimethyl-1,3-diaminopropane
 CN N,N-Dimethyl-1,3-propanediamine
 CN N,N-Dimethyl-1,3-propylenediamine
 CN N,N-Dimethyl-N-(3-aminopropyl)amine
 CN N,N-Dimethylpropylenediamine
 CN N,N-Dimethyltrimethylenediamine
 CN N-Aminopropyl-N,N-dimethylamine
 CN NSC 1067
 FS 3D CONCORD
 DR 68497-58-5
 MF C5 H14 N2
 CI COM
 LC STN Files: ANABSTR, BEILSTEIN*, BIOBUSINESS, BIOSIS, CA, CANCERLIT,
 CAOLD, CAPLUS, CASREACT, CBNB, CHEMCATS, CHEMINFORMRX, CHEMLIST,
 CHEMSAFE, CIN, CSCHEM, CSNB, DETHERM*. EMBASE, GMELIN*, HODOC*, HSDB*,
 IFICDB, IFIPAT, IFIUDB, MEDLINE, MSDS-OHS, NIOSHTIC, PROMT, PS, RTECS*,
 SPECINFO, SYNTHLINE, TOXCENTER, ULIDAT, USPAT2, USPATFULL
 (*File contains numerically searchable property data)

Other Sources: DSL**, EINECS**, TSCA**

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DT.CA Caplus document type: Conference; Dissertation; Journal; Patent; Report
 RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study);
 CMBI (Combinatorial study); OCCU (Occurrence); PREP (Preparation); PROC
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 reagent); USES (Uses)

H₂N-(CH₂)₃-NMe₂

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

3722 REFERENCES IN FILE CA (1907 TO DATE)
 1105 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 3727 REFERENCES IN FILE CAPLUS (1907 TO DATE)
 35 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

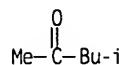
L3 ANSWER 13 OF 16 REGISTRY COPYRIGHT 2005 ACS on STN

RN 108-10-1 REGISTRY
 CN 2-Pentanone, 4-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)
 OTHER NAMES:
 CN 2-Methyl-4-pentanone
 CN 2-Methylpropyl methyl ketone
 CN 4-Methyl-2-oxopentane
 CN 4-Methyl-2-pantanone
 CN Hexone
 CN Isobutyl methyl ketone
 CN Isopropylacetone
 CN Methyl 2-methylpropyl ketone
 CN Methyl iso-butyl ketone
 CN Methyl isobutyl ketone
 CN MIBK
 CN MIK
 CN NSC 5712
 FS 3D CONCORD
 MF C6 H12 O
 CI COM
 LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN*, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSHEM, CSNB, DETHERM*, DIPPR*, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, GMELIN*, HODOC*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NAPRALERT, NIOSHTIC, PDLCOM*, PIRA, PROMT, PS, RTECS*, SPECINFO, TOXCENTER, TULSA, ULIDAT, USAN, USPAT2, USPATFULL, VTB
 (*File contains numerically searchable property data)

Other Sources: DSL**, EINECS**, TSCA**

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DT.CA Cplus document type: Book; Conference; Dissertation; Journal; Patent; Report
 RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
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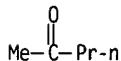


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

8913 REFERENCES IN FILE CA (1907 TO DATE)
 260 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 8917 REFERENCES IN FILE CAPLUS (1907 TO DATE)
 1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L3 ANSWER 14 OF 16 REGISTRY COPYRIGHT 2005 ACS on STN
 RN 107-87-9 REGISTRY
 CN 2-Pentanone (8CI, 9CI) (CA INDEX NAME)
 OTHER NAMES:
 CN 4-Methyl-2-butanone

CN Ethylacetone
 CN Methyl n-propyl ketone
 CN Methyl propyl ketone
 CN NSC 5350
 CN Propyl methyl ketone
 FS 3D CONCORD
 MF C5 H10 O
 CI COM
 LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN*, BIOBUSINESS, BIOSIS,
 BIOTECHNO, CA, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS,
 CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, DETHERM*, DIPPR*,
 EMBASE, GMELIN*, HODOC*, HSDB*, IFICDB, IFIPAT, IFIUDB, MEDLINE, MRCK*,
 MSDS-OHS, NAPRALERT, NIOSHTIC, PDLCOM*, PIRA, PROMT, PS, RTECS*,
 SPECINFO, SYNTHLINE, TOXCENTER, TULSA, USPAT2, USPATFULL, VTB
 (*File contains numerically searchable property data)
 Other Sources: DSL**, EINECS**, TSCA**
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 DT.CA CPlus document type: Conference; Dissertation; Journal; Patent;
 Preprint; Report
 RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study);
 FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU
 (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT
 (Reactant or reagent); USES (Uses); NORL (No role in record)
 RLD.P Roles for non-specific derivatives from patents: BIOL (Biological
 study); PREP (Preparation); PRP (Properties); RACT (Reactant or
 reagent); USES (Uses)
 RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological
 study); CMBI (Combinatorial study); FORM (Formation, nonpreparative);
 MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC
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 NORL (No role in record)
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PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

5179 REFERENCES IN FILE CA (1907 TO DATE)
 36 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 5186 REFERENCES IN FILE CAPLUS (1907 TO DATE)
 5 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L3 ANSWER 15 OF 16 REGISTRY COPYRIGHT 2005 ACS on STN
 RN 78-93-3 REGISTRY
 CN 2-Butanone (8CI, 9CI) (CA INDEX NAME)
 OTHER NAMES:
 CN 3-Butanone
 CN Butanone
 CN Ethyl methyl ketone
 CN MEK
 CN Methyl ethyl ketone
 FS 3D CONCORD
 DR 135311-02-3
 MF C4 H8 O
 CI COM
 LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN*, BIOBUSINESS, BIOSIS,
 BIOTECHNO, CA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS.

CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, DDFU, DETHERM*, DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, GMELIN*, HODOC*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NAPRALERT, NIOSHTIC, PDLCOM*, PIRA, PROMT, PS, RTECS*, SPECINFO, SYNTHLINE, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL, VTB
(*File contains numerically searchable property data)

Other Sources: DSL**, EINECS**, TSCA**

(**Enter CHEMLIST File for up-to-date regulatory information)

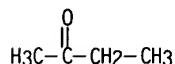
DT.CA CAplus document type: Book; Conference; Dissertation; Journal; Patent; Preprint; Report

RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

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RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

22808 REFERENCES IN FILE CA (1907 TO DATE)
236 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
22839 REFERENCES IN FILE CAPLUS (1907 TO DATE)
10 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L3 ANSWER 16 OF 16 REGISTRY COPYRIGHT 2005 ACS on STN

RN 67-64-1 REGISTRY

CN 2-Propanone (9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Acetone (8CI)

CN Methyl ketone (6CI)

OTHER NAMES:

CN .beta.-Ketopropane

CN Dimethyl ketone

CN Dimethylformaldehyde

CN NSC 135802

CN Propanone

CN Pyroacetic ether

FS 3D CONCORD

MF C3 H6 O

CI COM

LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN*, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, DDFU, DETHERM*, DIOGENES, DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, GMELIN*, HODOC*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NAPRALERT, NIOSHTIC, PDLCOM*, PIRA, PROMT, PS, RTECS*, SPECINFO, SYNTHLINE, TOXCENTER, TULSA, ULIDAT, USAN, USPAT2, USPATFULL, VETU, VTB

(*File contains numerically searchable property data)

Other Sources: DSL**, EINECS**, TSCA**

(**Enter CHEMLIST File for up-to-date regulatory information)

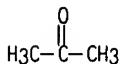
DT.CA Cplus document type: Book; Conference; Dissertation; Journal; Patent; Preprint; Report

RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

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PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

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811 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA

71277 REFERENCES IN FILE CAPLUS (1907 TO DATE)

22 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

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FILE 'WPIX' ENTERED AT 13:15:11 ON 11 MAR 2005
 COPYRIGHT (C) 2005 THE THOMSON CORPORATION

FILE LAST UPDATED: 8 MAR 2005 <20050308/UP>

MOST RECENT DERWENT UPDATE: 200516 <200516/DW>

DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE. COVERS 1963 TO DATE

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>>> FOR DETAILS OF THE PATENTS COVERED IN CURRENT UPDATES, SEE
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 GUIDES, PLEASE VISIT:
[<<<](http://thomsonderwent.com/support/userguides/)

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 FOR FURTHER DETAILS: [<<<](http://www.thomsonderwent.com/dwpifv)

>>> THE CPI AND EPI MANUAL CODES HAVE BEEN REVISED FROM UPDATE 200501.

PLEASE CHECK:
<http://thomsonderwent.com/support/dwpiref/reftools/classification/code-revision/>
FOR DETAILS. <<<

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L4 ANSWER 1 OF 1 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN

AN 2004-224436 [21] WPIX

CR 2004-167955 [16]

DNC C2004-088594

TI Production of secondary amine product comprises heating mixture comprising hydrogen, carbonyl compound and primary amine reactant in presence of catalyst comprising metallic palladium.

DC A25 E19 J04

IN NELLI, C H; SU, W

PA (HUNT-N) HUNTSMAN PETROCHEMICAL CORP

CYC 1

PI US 2004019238 A1 20040129 (200421)* 7 C07C002-00 <--

ADT US 2004019238 A1 CIP of US 2002-200361 20020722, US 2003-623293 20030718

PRAI US 2003-623293 20030718; US 2002-200361 20020722

IC ICM C07C002-00

AB US2004019238 A UPAB: 20040326

NOVELTY - Producing a secondary amine product comprises heating a mixture comprising hydrogen, a carbonyl compound and a primary amine reactant to 80-230 deg. C and under 100-3000 psig in the presence of a catalyst comprising metallic palladium.

DETAILED DESCRIPTION - Producing a secondary amine product comprises heating a mixture comprising hydrogen, a carbonyl compound of formula R'-C(=O)-R and a primary amine reactant of formula R-NH₂ to 80-230 deg. C and under 100-3000 psig in the presence of a catalyst comprising metallic palladium. The secondary amine has the formula RNH-CH(R')(R).

R = alkyl, aminoalkyl, alkylaryl, or aminoalkyl;

R', R = H or 1-20C alkyl, provided that both R' and R are not simultaneously H.

The amount of tertiary amine produced during the process is less than 3.00 weight% of the total amount of secondary amine produced.

An INDEPENDENT CLAIM is also included for a process for producing a secondary amine product from a primary amine reactant.

USE - For producing a secondary amine product, preferably N,N'-diisopropylisophorone diamine (claimed) that may be used as catalysts for the production of polyurethanes and polyureas.

ADVANTAGE - The process of the invention has high conversion rates and high selectivities, both greater than 95% on a first pass through the reactor.

Dwg.0/0

FS CPI

FA AB: DCN

MC CPI: A02-A10; E10-B01E; E10-B04C2; E11-F07A; J04-E04; N02-F01; N07-D08A

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FILE 'HOME' ENTERED AT 13:15:23 ON 11 MAR 2005

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